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# PRELIMINARY ASSESSMENT OF THE NATIONAL GUARD FACILITIES AT FORT PICKETT, BLACKSTONE, VA

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(Red)

## EXECUTIVE SUMMARY

Engineering Technologies Associates, Inc. performed a Preliminary Assessment (PA) of the Federally-owned Virginia Army National Guard (VAARNG) areas of Fort Pickett located adjacent to Blackstone, Virginia, including a site visit and review of all available documents. The VAARNG areas of Fort Pickett are located in the Mobilization and Training Equipment Site (MATES) area. The VAARNG MATES facility mission is to provide support maintenance to Army National Guard and U.S. Army Reserve equipment on Fort Pickett.

The MATES area is located in the Cantonment Area of Fort Pickett, which is the administrative and functional headquarters of the installation. This portion of Fort Pickett consists of 16 buildings in an area bordered by Warehouse Street to the north and east, Military Road to the west, and 8th Street to the south. In addition to this area, there are four other buildings that previously appeared on the VAARNG Facility Inventory and Stationing Plan but are no longer used by the VAARNG. These buildings are located in a separate section of the post and are being extensively remodeled and used by Fort Pickett personnel.

Based on the results of the site reconnaissance and a review of all available documentation, and in accordance with the Preliminary Assessment guidance released by the U.S. Environmental Protection Agency, eight potential CERCLA sources have been identified at the Fort Pickett VAARNG areas. These sources include: Source 1 - Historical Painting Operations in Building 127; Source 2 - Oil/Water Separators; Source 3 - Building 134 POL Storage Area; Source 4 - Building 134 Battery Room; Source 5 - Building 137 Contaminated Soil; Source 6 - Hazardous Waste Storage Areas; Source 7 - Wash racks; and Source 8 - Asbestos-Containing Materials.



## 1.0 INTRODUCTION

Engineering Technologies Associates, Inc. (ETA), under Contract No. DACA31-92-D0045, Delivery Order 007, Subtask 14 with the U.S. Army Environmental Center (USAEC), performed a Preliminary Assessment (PA) of the Federally-owned Virginia Army National Guard (VAARNG) areas of Fort Pickett, located adjacent to the Town of Blackstone, in Nottoway County, Virginia. The VAARNG areas of Fort Pickett are located in the Mobilization and Training Equipment Site (MATES) area. This PA conforms to the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1981, as amended by the Superfund Amendments and Reauthorization Act (SARA) of 1986.

The purpose of this investigation is to characterize the site accurately and to determine the need for further action by examining site activities, quantities of hazardous substances present, and potential pathways by which contamination could affect public health and the environment. Because this investigation did not include any environmental sampling, analytical data are limited; however, all available information was reviewed, employees familiar with current and historic operations were interviewed, and a site visit was conducted. Available information regarding petroleum products is included in the report, although petroleum products are not regulated under CERCLA.

The site visit was conducted on January 19, 1994, by Mr. Edward Miles and Mr. Raymond Green of ETA. Major Covino of the U.S. Army National Guard Bureau (NGB), Ms. Eileen Williams of the Virginia Department of Military Affairs, and Chief Warrant Officer Andre Paulette, the Assistant Superintendent of the MATES facility, accompanied the ETA investigators. Chief Warrant Officer Paulette has been associated with the VAARNG MATES facility since 1961 to the present and has held positions ranging from Machinist to Heavy Mobilization Equipment Mechanic General Foreman. He was assigned to the VAARNG MATES facility for this entire period with the exception of an assignment to the Combined Support Maintenance Shop, also at Fort Pickett, from 1991 to 1993.



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The U.S. EPA Potential Hazardous Waste Site Preliminary Assessment Form was used to collect and assemble information for the PA. The completed form is included in this document as Appendix B.

## 2.0 SITE DESCRIPTION, OPERATIONAL HISTORY, AND WASTE CHARACTERISTICS

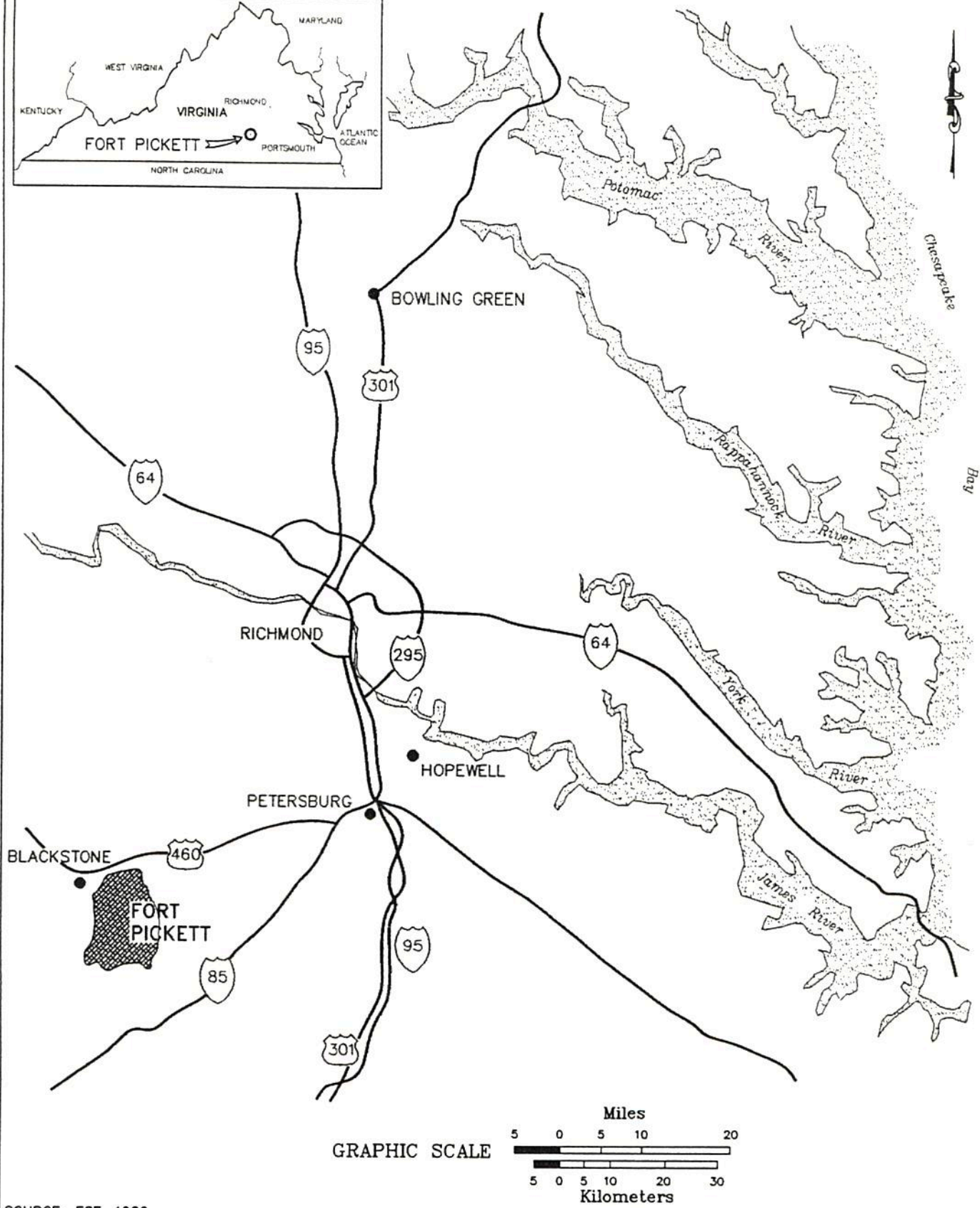
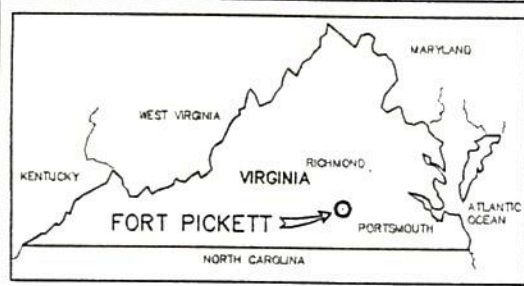
### 2.1 Location

Fort Pickett Military Reservation is located in the lower Piedmont Region of the Commonwealth of Virginia, approximately 2 miles east of Blackstone, Virginia. The reservation is located in Nottoway, Brunswick, Dinwiddie, and Lunenburg Counties. As depicted in Figure 1, it is located 35 miles southwest of Petersburg, Virginia, and 60 miles southwest of Richmond, the capital of the Commonwealth. The coordinates of the VAARNG area were calculated on the worksheet provided as Appendix F. The coordinates of the VAARNG MATES facility are 37 degrees, 3 minutes, 14 seconds North latitude and 77 degrees, 58 minutes, 17 seconds East longitude. The VAARNG MATES facility is located in the Cantonment Area (Figure 2), which is the administrative and functional headquarters of the installation. As shown in Figure 3, the VAARNG portion of Fort Pickett consists of 16 buildings (numbered 113, 124, 125, 127, 130, 132, 134, 135, 135A, 136, 137, 142, 143, 144, 146, and 147) in an area bordered by Warehouse Street to the north and east, Military Road to the west, and 8th Street to the south. In addition to this area, there are four other buildings, Nos. 762, 2364, 2384, and 2385, that previously appeared on the VAARNG Facilities Inventory and Stationing Plan (FISP). These buildings are located in separate sections of the post and are being extensively remodeled and used by post personnel (Paulette, 1994).

### 2.2 Site Description

Fort Pickett encompasses 45,160 acres and is broadly divided into open operational areas (43,803 acres) and an administrative and functional Cantonment Area (1,357 acres). The Cantonment Area contains: troop housing and support facilities; quarters areas; administrative areas; community areas; and warehouse, utility, supply, and other service areas (USACOE, 1991). The VAARNG MATES area currently covers 42.14 acres in the Cantonment Area (Williams, 1994).

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SOURCE: ESE, 1982

DESIGNED	EM.	2/84
DRAWN	SGP.	2/84
CHECKED	KW.	2/84
APPROVED	DHK.	2/84

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ELLICOTT CITY, MARYLAND 21043  
BALTO. 461-0820 WASH. 621-6800

FIGURE NO. 1
<b>FORT PICKETT</b>
Installation Location Map
CONTRACT NO.: 92307.714



A detailed map of Fort Belvoir, Colorado, enclosed by a thick black line representing the installation boundary. The map includes the following features and labels:

- INSTALLATION BOUNDARY:** Indicated by a thick black line.
- CANTONMENT AREA:** A small rectangular area with diagonal hatching, located near the Blackstone Airport.
- BLACKSTONE AIRPORT:** Represented by a stylized runway and taxiway symbol.
- DEVELOPED AREA:** A large, irregularly shaped area in the center of the installation.
- QUARRY POND:** A small circular pond located near the cantonment area.
- WATER BODIES:**
  - NOTTOWAY RESERVOIR:** A large, irregularly shaped body of water in the lower-left corner.
  - HURRICANE BRANCH:** A stream flowing from the reservoir towards the center.
  - ROCKY RUN:** A small stream flowing into the reservoir from the bottom.
  - RED OAK CREEK:** A stream flowing from the bottom right towards the reservoir.
  - BIRCHIN CREEK:** A stream flowing from the center towards the right.
  - TOMMEHETON CREEK:** A stream flowing from the right towards the center.
  - BUTTERWOOD CREEK:** A stream flowing from the top right towards the center.
  - NOTTOWAY RIVER:** Shown in two locations: one flowing from the left into the reservoir, and another flowing from the right towards the bottom right.
  - LITTLE NOTTOWAY RIVER:** A tributary flowing into the main Nottoway River from the top left.
- Other Features:**
  - TWIN LAKES:** Two small lakes located near the top right.
  - BIRCHIN LAKE:** A small lake located near the center.
  - TOMMEHETON LAKE:** A small lake located near the right edge.
- Orientation and Scale:**
  - A north arrow is located in the top right corner.
  - The text "DRAWING NOT TO SCALE" is located in the top right corner.

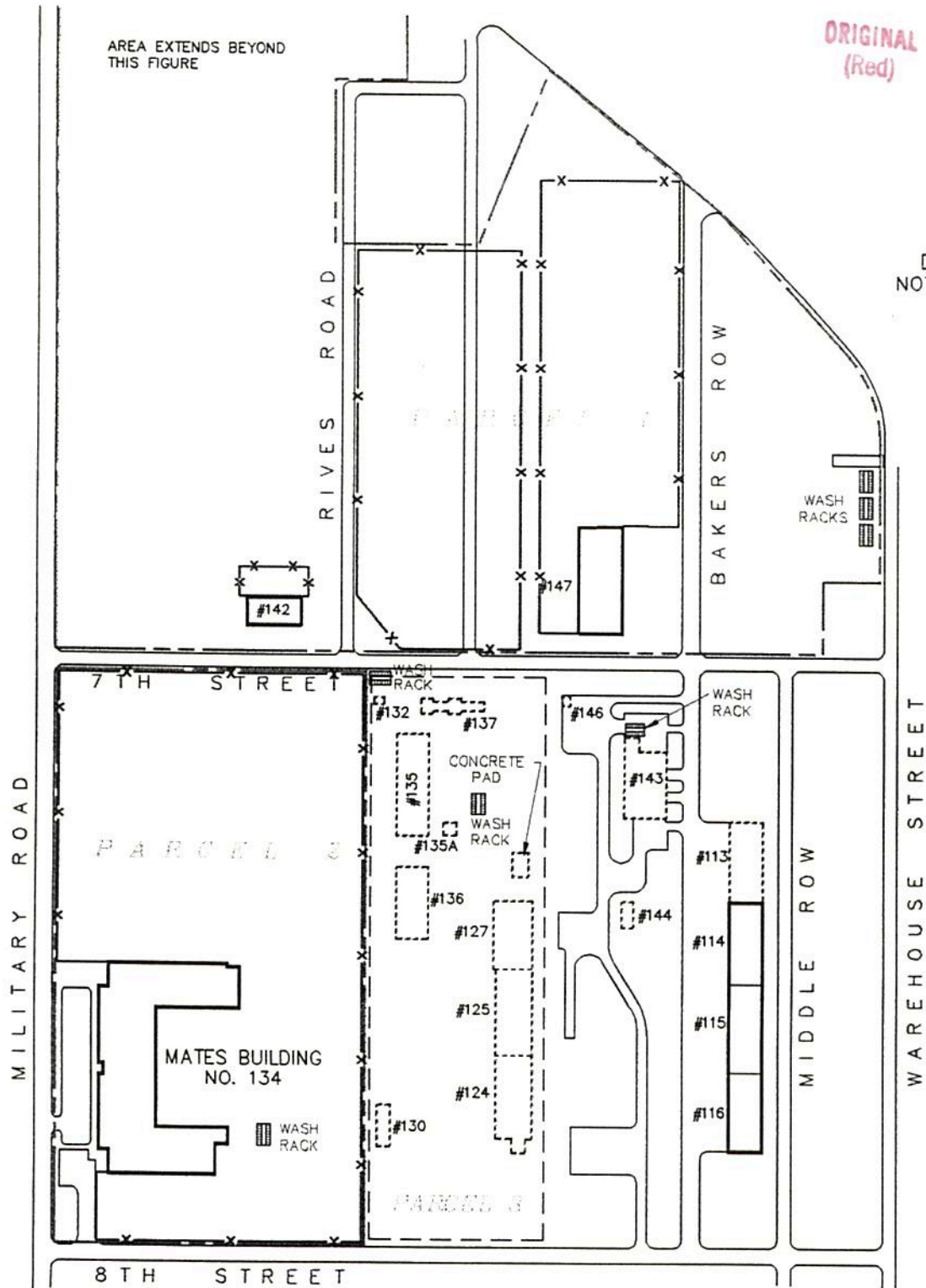
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		DATE
APPROVED	<u>D.H.K.</u>	<u>2/94</u>
		DATE

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**FORT PICKETT**  
Cantonment Area and  
Surface Water Map

CONTRACT NO.: 92307.714

DRAWING  
NOT TO SCALE



	FENCE
	LICENSED TO VAARNG
	LICENSE TO VAARNG PENDING
	HAND-RECEIPTED TO VAARNG

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		DATE
APPROVED	<u>D.H.K.</u>	<u>1/94</u>
		DATE

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FIGURE NO. 3

FORT PICKETT  
VAARNG MATES FACILITY  
Building Plan

CONTRACT NO: 92307.714

The area surrounding Fort Pickett is characterized by agricultural and commercial land uses. Agricultural land supporting corn, soybean, tobacco, and hay is interspersed among forest areas. Rural farm and non-farm residents live mostly near roads in the adjacent areas, with numerous small communities, towns, and clusters of houses located in the surrounding area (USACOE, 1991).

The VAARNG MATES area is divided into three distinct parcels, the first two of which are currently licensed to the VAARNG. The first parcel, located north of 7th Street, covers 32.84 acres (Williams, 1994) and contains Buildings 142 and 147. This parcel is licensed to the VAARNG by the U.S. Army Garrison, Fort Pickett. The second parcel, located south of 7th Street, covers 9.3 acres (Williams, 1994) and contains Building 134. This parcel is also licensed to the VAARNG by the U.S. Army Garrison, Fort Pickett (Paulette, 1994). The third parcel, which is located immediately east of the second parcel and covers approximately 7 acres, contains Buildings 124, 125, 127, 130, 132, 135, 135A, 136, and 137, and is currently owned by the U.S. Army Garrison, Fort Pickett, Blackstone, Virginia 23824-5000 (Dudley, 1994). The VAARNG is attempting to acquire a license on this parcel. The buildings on this parcel are currently hand-receipted to the VAARNG from the U.S. Army Garrison, Fort Pickett (Paulette, 1994). A hand-receipt is essentially an agreement to temporarily lend government-owned property to another person or organization. These hand-receipts must be updated annually. An inventory is also conducted annually to account for government-owned property in the buildings such as air conditioners and water coolers. Four additional buildings 113, 143, 144, and 146 are located to the east of the third parcel, and are hand-receipted by the U.S. Army Garrison, Fort Pickett, to the VAARNG (Paulette, 1994).

As shown in Figure 3, the MATES facility compound (Building 134) is surrounded by a maintained six-foot chain link perimeter fence. A small fenced compound is located around Building 142. There is a large fenced compound located north and west of Building 147 (Dudley, 1994).



### 2.2.1 Climate

Fort Pickett lies in an area characterized by a mild and temperate climate, with moderate temperatures, relatively mild winters and hot humid summers. The average summer temperature is 76.6 degrees Fahrenheit (°F), and the average winter temperature is 38.7 °F. Extreme temperatures of -6 °F and 105 °F have been recorded (USACOE, 1991). Precipitation is fairly well distributed throughout the year, with an arithmetic mean of 42.1 inches annually (ESE, 1982). Accounting for evapotranspiration, the average annual net precipitation is 4.8 inches. The 2-year, 24-hour rainfall event was estimated at 2.8 inches (ASI, 1990). The prevailing winds are from the south-southeast, with an average annual wind velocity of 0.89 miles per hour (ESE, 1982).

## 2.3 Site History

In 1941, land in four counties was purchased to establish a training camp for World War II troops. Construction was completed in July 1942, and the site was dedicated as Camp Pickett. During World War II, Camp Pickett provided advanced infantry and amphibious training to troops prior to overseas deployment. At the peak of operations in 1943, 85,000 troops were stationed at the installation. Camp Pickett also served as a base for airborne operations and as a detention area for German prisoners of war. In 1942, the Medical Replacement Training Center was moved from Camp Lee to Camp Pickett (ESE, 1982).

Following the war, activity at Camp Pickett slowed considerably. Between 1946 and 1949, Camp Pickett was opened and closed twice. In 1950, the Korean War necessitated the reopening of Camp Pickett. Following this war, Camp Pickett was once again deactivated for the period of 1954 to July 1973, when it received its current designation as semiactive (ESE, 1982).

In February 1961, the VAARNG MATES facility was established and housed in buildings that were built in the early 1940's. In 1963, Camp Pickett became a subordinate installation of Fort Lee. Its mission was to provide artillery and armor training to active duty Army, Reserves,

National Guard, Navy, and Air Force units. In 1974, Camp Pickett was redesignated as Fort Pickett, but has retained its semiactive status (ESE, 1982). The new MATES facility (Building 134) was constructed between 1985 and 1987, and many of the National Guard activities were consolidated into the main building (Paulette, 1994). Fort Pickett is now a subinstallation of Fort Bragg which is a FORSCOM installation (Dudley, 1994).

## **2.4 Operational History and Waste Characteristics**

The VAARNG MATES facility mission is to provide direct support/general support, organizational, and in-storage maintenance to Army National Guard and U.S. Army Reserve equipment on Fort Pickett (consisting of tanks, howitzers, mortar carriers, personnel carriers, cargo carriers, combat engineer vehicles, command post vehicles, armored vehicle launched bridge and recovery vehicles); tactical wheeled vehicles (trucks, trailers, cranes, and forklifts); and administrative-use vehicles (cars, ambulances, and buses) (ESE, 1982).

Fort Pickett has been listed in the Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) under EPA ID# VA2210020705. A Preliminary Assessment Responses report and a Preliminary Assessment Addendum Report have been performed on Fort Pickett subsequent to its listing (ASI, 1990, Weston 1992). These reports were reviewed, and information pertinent to the VAARNG facilities is presented in this PA document.

The VAARNG MATES facility operates under Resource Conservation and Recovery Act (RCRA) permit number VAD 988228359 as a large quantity generator of hazardous wastes. This designation is separate from the Fort Pickett designation (Williams, 1994). The MATES facility formerly reported under Fort Pickett's generator identification number, which Fort Pickett received in February 1986. The status was changed when the VAARNG MATES received its own identification number in May 1993 (Dudley, 1994).



On September 12, 1992, approximately 80 gallons of liquid were spilled during the installation of an oil/water separator. The liquid originated from a VAARNG MATES building floor drain and spilled into the excavation pit for the new oil/water separator through an open pipe. The liquid was removed from the pit and placed in two 55-gallon drums. Soils from the pit were excavated and stockpiled prior to sampling. Samples were collected from the stockpiled soil and the excavated pit and analyzed for volatile and semi-volatile organic compounds. Low concentrations of petroleum constituents were detected in the soil; however, all samples contained concentrations less than 12 ppm. The analysis of the liquids collected from the pit contained the same constituents. The levels detected in the soils were well below the state action level of 100 ppm. All excavated materials were disposed of properly. The collected liquid was disposed of by routing it through an operational oil/water separator (Williams, 1994). Due to the low levels of contaminant concentration and the petroleum exclusion of CERCLA, the spill is not considered a factor in this report. Memoranda pertinent to this event are included in Appendix C.

#### 2.4.1 Building 113

Building 113 is a wooden structure built in the early 1940's that was used by the VAARNG from 1961 to approximately 1987 when its storage function was transferred to the newly constructed Basic Issue Items building (Building 147). The VAARNG used this building as a storage area for vehicle components and parts. This building currently houses the U.S. Property and Fiscal Office (USP&FO) and is used to store unserviceable repair parts. Although this building is not located on land that is licensed to the VAARNG, the building itself is hand-receipted from the U.S. Army Garrison, Fort Pickett, to the VAARNG (see Photo 1) (Paulette, 1994) (All photographs are provided in Appendix A.)

#### 2.4.2 Building 124/125/127 Complex

Buildings 124, 125, and 127 are wooden buildings built in the 1940's that are connected by mutual brick fire walls and form a three-building complex (see Photo 2). Although these



buildings are not located on land that is licensed to the VAARNG, the buildings themselves are hand-receipted from the U.S. Army Garrison, Fort Pickett, to the VAARNG (Paulette, 1994).

Building 124 was used by the VAARNG from 1961 to approximately 1988 when its warehouse function was transferred to the newly constructed VAARNG MATES facilities in Building 142. The VAARNG used this building to store repair items and parts. Since 1988, this building has been used by fielding teams for new M-1 tanks. These fielding teams accept shipments of new tanks from the manufacturer and perform acceptance inspections prior to distribution to U.S. Army, National Guard, and Reserve units (see Photo 3) (Paulette, 1994).

Building 125 was also used by the VAARNG from 1961 to approximately 1988 when its warehouse function was transferred to the newly constructed VAARNG MATES facilities in Building 142. Since 1988, this building has been used as a storage area for fielding team operations in building 124 (Paulette, 1994).

Building 127 houses a service section used by the VAARNG MATES facility (see Photo 4). A large paint booth is located in this building (see Photo 5), as well as a vehicle track repair shop. The paint booth was transported from Fort Eustis in 1974 or 1975. The paint booth is used to apply chemical agent resistant coating (CARC). The booth is filtered, and the filters are removed and replaced as required. No permit is required for this booth, and the spent filters are disposed of as non-hazardous solid waste. Tracked vehicles are driven into the building and the track is removed from the vehicle and repaired (Paulette, 1994). The building contains a Safety-Kleen parts wash station (see Photo 6). Safety-Kleen is a contract supplier of cleaning solvents, equipment, and services. The wash station unit is completely self-contained, and consists of a solvent storage drum and parts wash basin. It is serviced periodically by Safety-Kleen, who is located at 1200 West 100 Road, Chester, Virginia (Transportation, Storage, and Disposal Facility (TSDF) No. VAD 981043011) (Dudley, 1994).

A concrete pad, located north of Building 127, is not used by the VAARNG MATES facility. Its original purpose and historical use are unknown (Paulette, 1994).

#### 2.4.3 Building 130

Building 130 is a wooden structure built in the early 1940's that was used as the MATES administrative offices by the VAARNG from 1961 to approximately 1987 when its function was transferred to the newly constructed MATES building (Building 134) (Paulette, 1994). The floor of the building is wood and is elevated several feet from grade. It is currently used by fielding teams in Building 124 as additional administrative area if it is required. Although this building is not located on land that is licensed to the VAARNG, the building itself is hand-receipted from the U.S Army Garrison, Fort Pickett, to the VAARNG (see Photo 7) (Paulette, 1994).

#### 2.4.4 Building 132

Building 132 is a small corrugated metal storage building with a cement slab floor that is used to hold motor oil and other types of petroleum, oil, and lubricants (POL), including hydraulic fluid and used oil filters and approximately two 5-gallon unopened containers of PD-680 (a solvent composed of a refinery blend of petroleum distillates). The building is secured with a lock but does not have any secondary spill containment. At the time of the site visit, there were fifteen 15-gallon and one 55-gallon containers of used fuel filters, and a number of containers of floor coating used on interior surfaces of tracked vehicles. Although this building is not located on land that is licensed to the VAARNG, the building is hand-receipted from the U.S. Army Garrison, Fort Pickett, to the VAARNG (see Photo 8) (Paulette, 1994).

#### 2.4.5 Building 134

Building 134 is the main VAARNG MATES facility building and was constructed between 1985 and 1987 (see Photo 9) (Paulette, 1994). It is VAARNG property (Duke, 1994). The walls are constructed of concrete block and the floors are concrete. The south wing houses 13 repair bays where maintenance is performed on tracked vehicles (Paulette, 1994). In addition, the south wing contains a carburetor repair room, a battery room, and a tool room. Each repair bay is served by a floor drain which is connected to the sanitary sewer after being routed



through an oil/water separator in the center courtyard of the building (Paulette, 1994). The tool room and the repair bay area contain storage lockers for flammable materials including sealants and adhesives. The south wing also contains several self-contained solvent wash stations that are serviced by Safety-Kleen. The battery room has a concrete floor and a floor drain that connects to the same oil/water separator (Paulette, 1994). At the time of the site visit, there were approximately 100 lead-acid batteries being serviced in this unheated room (see Photo 10). Outside the battery room, approximately fifteen 15-gallon containers of sulfuric acid were observed resting on a wooden pallet with no secondary containment (see Photo 11). It was reported that this was a temporary arrangement and the acid was subsequently moved into the battery room (Williams, 1994). A bulk storage area is located outside the east end of the building. At the time of the site visit, this area contained approximately twenty 55-gallon drums of lubrication and hydraulic oil, and several drums of ethylene glycol (see Photo 12).

The north wing of Building 134 houses the signal shop which is charged with performing bench-level work on radios. The signal shop was formerly located in Building 762 (1963 to 1968/69) and Building 136 (1968/69 to 1986/87) (Paulette, 1994). The north wing also houses 11 additional active repair bays, each with its own floor drain. These floor drains also connect to the sanitary sewer after being routed through a second oil/water separator in the center courtyard of Building 134 (Paulette, 1994).

Used oil from operations in Building 134 is routed to an underground storage tank (UST) for temporary storage. The used oil is then mixed with virgin heating oil and burned to provide heat for Building 134 (Paulette, 1994).

#### 2.4.6 Building 135

Building 135 is a corrugated metal shop building currently used by VAARNG MATES personnel that has been in use since 1961 (Paulette, 1994). There is a solvent wash station in the building that is completely self-contained and is serviced regularly by Safety-Kleen. The concrete floor of the building has a number of large cracks. There are several flammable



material storage lockers inside the building that are normally secured except during work hours. A POL storage area is located north of Building 135. At the time of the site visit, this area contained approximately thirty 55-gallon drums of lubrication oil and hydraulic fluid (see Photo 8). Although this building is not located on land that is licensed to the VAARNG, the building itself is hand-receipted from the U.S. Army Garrison, Fort Pickett, to the VAARNG (see Photo 13) (Paulette, 1994).

#### 2.4.7 Building 135A

Building 135A is a small building located east of Building 135 that houses the steam heat generating plant for Buildings 135 and 136. The steam generated in this building is also used to steam-clean vehicles. The residue is routed to the sanitary sewer via an oil/water separator. Although this building is not located on land that is licensed to the VAARNG, the building itself is hand-receipted from the U.S. Army Garrison, Fort Pickett, to the VAARNG (Paulette, 1994).

#### 2.4.8 Building 136

Building 136 is a corrugated metal Organizational Maintenance Shop (OMS) for tracked vehicles. This building contains an overhead crane. Building 136 has been used for VAARNG MATES activities since 1961 (Paulette, 1994). Although this building is not located on land that is licensed to the VAARNG, the building itself is hand-receipted from the U.S. Army Garrison, Fort Pickett, to the VAARNG (see Photo 14) (Paulette, 1994).

#### 2.4.9 Building 137

Building 137 is a wooden building, built in the early 1940's, that was used by VAARNG MATES personnel from 1961 to 1987 as office space for vehicle inspectors. The building has not been used since 1987 and is currently scheduled for demolition by Fort Pickett. Although this building is not located on land that is licensed to the VAARNG, the building itself is hand-receipted from the U.S. Army Garrison, Fort Pickett, to the VAARNG (see Photo 15) (Paulette,

1994). Samples of soil, paint, and wallboard were collected and analyzed for metals and asbestos as part of a pre-demolition inspection. The analytical results are discussed in Section 2.5.5.

#### 2.4.10 Building 142

Building 142 is a concrete block structure with a concrete floor that was built at the same time as the new central VAARNG MATES facility (Building 134). The operations and activities from Buildings 124 and 125 were consolidated in this new facility. The VAARNG uses this building to store repair items and parts (see Photo 16) (Paulette, 1994). Building 142 is VAARNG property (Duke, 1994).

#### 2.4.11 Buildings 143 and 144

Building 143 is a metal-sided building that has been used by VAARNG MATES personnel since 1961 (see Photo 17). The building houses an OMS for tracked vehicles (Paulette, 1994). There are several flammable materials storage cabinets in this building used to store solvent and adhesives. The north end of the building houses a steam-cleaning rack and an associated floor drain (see Photo 18). This floor drain is routed directly to the sanitary sewer (Paulette, 1994). A second wash rack is located outside the north end of the building. This wash rack also drains directly to the sanitary sewer (Dudley, 1994). Hazardous waste and used oil are stored outside the building in 55- and 30-gallon drums in a hazardous waste storage shed prior to collection and proper disposal (Paulette, 1994).

Building 144, a corrugated metal quonset, is located south of Building 143 and is used for storage of parts (see Photo 19). At the time of the site visit, four 55-gallon drums of lubricating oil and hydraulic fluid were located adjacent to the quonset hut. Buildings 143 and 144 are not located on land that is licensed to the VAARNG, but the buildings are hand-receipted from the U.S. Army Garrison, Fort Pickett, to the VAARNG (Paulette, 1994).



#### 2.4.12 Building 147

Building 147 houses the Property and Accountability Warehouse (Dudley, 1994). It is a concrete block building with a concrete floor that was built at the same time as the new central VAARNG MATES facility (Building 134). It is VAARNG property (Duke, 1994). The operations and activities from Buildings 113 were relocated to this new facility (see Photo 20). Basic issue items, such as jacks, tool kits, canvas, fire extinguishers, flares, and machine guns are removed from tracked vehicles prior to long-term storage to prevent loss. This equipment is reissued when the vehicles are needed for training or mobilization (Paulette, 1994). A self-contained Safety-Kleen solvent parts-cleaning station is located in the facility. The solvent in the station is removed and replaced as required by Safety-Kleen. The solvent storage container does not have secondary containment. Personnel in this building are responsible for manifesting and storing all hazardous waste prior to collection and proper disposal by an outside contractor (Paulette, 1994). The temporary hazardous waste storage area is located outside on a gravel surface with no secondary containment (see Photo 21). The 1993 waste stream of solvents, cleaning compounds, and antifreeze used by all VAARNG MATES facility operations amounted to 11,274 pounds (Dudley, 1994).

#### 2.4.13 Additional Buildings

Buildings 762, 2364, 2384, and 2385 were previously listed on the VAARNG MATES FISP, but are not currently used by VAARNG units. These buildings were at one time hand-receipted from the U.S. Army Garrison, Fort Pickett, to the VAARNG, but are currently being refurbished by Fort Pickett. Building 762 was used by VAARNG MATES personnel from 1961 to approximately 1968 as a signal shop charged with the repair of radios (see Photo 22). Building 2364 was formerly used as a log book storage building (see Photo 23). Buildings 2384 and 2385 were used to prepare equipment for issue (see Photo 24) (Paulette, 1994). No evidence of adverse environmental impact from VAARNG MATES activities in these buildings was found during the site visit or document review.



## 2.5 Potential CERCLA Sources

Under CERCLA, the EPA defines "source" as, "an area where a hazardous substance may have been deposited, stored, or placed". Also, soil that may have become contaminated as a result of hazardous substance migration is considered a source. In general, however, the volumes of air, ground water, surface water, and stream sediment that may have become contaminated through migration are not considered sources. Constituents that are defined as hazardous substances, pollutants, or contaminants are listed in CERCLA Sections 101(14) and 101(33) (USEPA, 1992). CERCLA, under the petroleum exclusion clause, eliminates petroleum products (crude oil or any fractions thereof) from consideration as contaminated sources. Although they are not CERCLA sources, petroleum-related sources are discussed in Section 2.6.

Based on the results of the site reconnaissance and review of all available documentation, seven potential CERCLA sources have been identified on the site. These potential CERCLA sources are annotated on Figure 4.

### 2.5.1 Source 1 - Historical Painting Operations in Building 127

An Installation Assessment (ESE, 1982) discusses historical painting operations in Building 126. The report discusses the existence of a former unfiltered paint booth in Building 126. The overspray from this paint booth was vented onto the ground under the vent assembly (ESE, 1982). Although there was no visible staining at the time of the site reconnaissance, the paint used at the time of the 1982 assessment reportedly contained lead and was visibly coating the soil beneath the vent. The areal extent of the visible staining or volume of potentially contaminated soil is not known. Two samples of the soil were collected in 1982 and analyzed for lead content. The results indicated that the lead level in the samples was less than 0.5 micrograms per liter ( $\mu\text{g/L}$ ) (ESE, 1982). (The actual laboratory report was not included as part of the 1982 ESE report. Therefore, the data have been reported as they were provided in the referenced report.) The RCRA limit for lead was provided in the report as 5.0  $\mu\text{g/L}$  (ESE, 1982).

[illegible]

④ → PHOTOGRAPH LOCATION  
SHOWING DIRECTION

FIGURE NO. 4

FORT PICKETT  
VAARNG MATES FACILITY  
CERCLA Sources



Current painting operations utilize a fully contained and filtered paint booth. Current operations apply CARC which is not lead-based. As there is no current Building 126, the exact location of this potential source is not known. It is possible that a fire wall between the former Building 126 and Building 127 was removed from the building complex that currently houses Buildings 124, 125, and 127. The resulting area could have retained the designation of Building 127.

#### 2.5.2 Source 2 - Oil/Water Separators

Although the majority of the hazardous substances stored and used in the VAARNG MATES buildings are completely contained and present no threat to exposure pathways (solvent parts wash stations and flammable storage lockers), these buildings do contain potential sources. All of the repair bays in Building 134, as well as the drain from the battery room, are connected to the sanitary sewer after being routed through an oil/water separator (Paulette, 1994). Although the constituents of the waste water are not known, the floor drains could receive a variety of hazardous substances that are normally used in the repair bays, including antifreeze, solvents (naphtha and other cleaning compounds), oil, and grease. There are two additional oil/water separators: one is located adjacent to Building 135; the other is associated with the wash racks in the northeast corner of VAARNG MATES area. The oil and grease would not be considered hazardous substances under CERCLA due to the petroleum exclusion; however, a release of a hazardous substance could have an impact on environmental pathways. Due to the uncertainty of the constituents of the waste water and the variable usage of the repair bays, the amount of hazardous substances, if any, routed to these oil/water separators is not known (Paulette, 1994).

#### 2.5.3 Source 3 - Building 134 POL Storage Area

The POL storage area behind the south wing of Building 134 contains several 55-gallon drums of ethylene glycol. This hazardous substance is accounted for by the waste stream analysis for hazardous waste storage areas provided in Section 2.5.6.



#### 2.5.4 Source 4 - Building 134 Battery Room

The Battery Room in the south wing of Building 134 contains a large number of lead-sulfuric acid batteries. For purposes of estimation, each battery is assumed to contain approximately 1 gallon of liquid. The temporary bulk storage of sulfuric acid outside the Battery Room amounts to an additional 225 gallons of a hazardous substance.

#### 2.5.5 Source 5 - Building 137 Contaminated Soil

Building 137 has not been used by the VAARNG since 1987 and has been scheduled for demolition by the U.S. Army Garrison, Fort Pickett. The VAARNG used this building as office space and has reported that no maintenance activities were ever conducted at this site (Paulette, 1994).

In October, 1993, samples of soil, paint, and wallboard were collected and analyzed for metals and asbestos as part of a pre-demolition inspection. Although a formal report was not released, analytical data generated during this study are provided in Appendix F. The sample of wallboard did not contain asbestos above the detection limit of 1 percent. A soil sample collected near the edge of a pipe just outside the building was analyzed for benzene, toluene, ethylbenzene, and total xylenes. These compounds were not detected above the detection limits. Two of the three soil samples collected in the area of the building showed detectable total petroleum hydrocarbon (TPH) concentrations (100 ppm and 200 ppm, respectively). The contractor performing the analysis rendered the opinion that the samples probably indicated minor spills and that the soil contamination could be mitigated by removing the top few inches of soil. This contamination is associated with petroleum which is excluded from consideration under CERCLA. The two samples of paint collected during the survey were analyzed for lead and showed concentrations (not detected and 0.640 ppm) well below the level necessary to be classified as hazardous waste under RCRA (5 ppm). However, the contractor stated that the concentration of lead in the sample from the exterior wall (0.640 ppm) was above the current guideline level at which the paint is considered to be lead-containing.

The area of potential soil contamination surrounding this building is not known with any degree of certainty, but a reasonable engineering approximation can be made. If a 10-foot buffer zone is used surrounding the footprint of the building, the resulting area of potential soil contamination in this buffer zone is approximately 3,200 square feet.

#### 2.5.6 Source 6 - Hazardous Waste Storage Areas

There are four hazardous waste storage areas on the VAARNG MATES area of Fort Pickett. Temporary storage areas are located behind Building 143, in front of Building 127, and between Buildings 132 and 137. The main hazardous waste storage area is located behind Building 147. Hazardous waste is stored in this area prior to collection and off-site disposal by Clean Harbors, an outside contractor located at 1910 Russell Street, Baltimore, Maryland (TSDF No. MDD 980555189). The 1993 waste stream of solvents, cleaning compounds, and antifreeze used by all VAARNG MATES facility operations amounted to 11,274 pounds (Dudley, 1994).

#### 2.5.7 Source 7 - Wash Racks

In addition to the wash racks discussed in the building descriptions, there are several wash racks associated with the VAARNG MATES facility that are not located at a building. These wash racks are located at the northeast corner of the VAARNG licensed area. There is an additional wash rack located directly north of Building 132 that is no longer used. It is equipped with an oil/water separator (Williams, 1994). The effluent from all of the wash racks in the VAARNG MATES area is routed through an oil/water separator prior to discharge into the sanitary sewer. The constituents of the discharge are not known. However, analytical data collected in January 1994 (included in Appendix F) provided by the VAARNG indicated that the sludge from the oil/water separators was found to contain elevated levels of total petroleum hydrocarbons and cadmium. The cadmium level detected was 1.03 milligrams per liter. Samples of water from the outfall area were tested and found to contain only low levels of total petroleum hydrocarbons (Dudley, 1994). Due to the uncertainty of the constituents of the waste



Unofficial  
(Red)

water and the variable usage of the wash racks, the amount of hazardous substances discharged from these wash racks is not known (Paulette, 1994).

#### 2.5.8 Source 8 - Asbestos-containing Materials

Due to their age (pre-1987 construction), there is a possibility of asbestos-containing materials (ACM) in several buildings in the VAARNG area of Fort Pickett. These buildings are: 113, the 124/125/127 Complex, 130, 132, 135, 135A, 136, 137, and 143. Buildings 762, 2362, 2384, and 2385, which were at one time hand-receipted from the U.S. Army Garrison, Fort Pickett, to the VAARNG, are also old enough to have contained ACM. A comprehensive asbestos investigation was not located during the document review.

### 2.6 Non-CERCLA Sources

The non-CERCLA sources discussed below are excluded from consideration under CERCLA because they do not contain CERCLA hazardous substances. The materials they contain are petroleum-based, and are therefore specifically excluded from the definition of hazardous substances. These sources are annotated on Figure 5.

#### 2.6.1 Underground Storage Tanks

A total of 16 USTs are located at the VAARNG MATES facility. None of these tanks have leak-detection mechanisms (Dudley, 1994). A single 500-gallon UST used to store #2 fuel oil is associated with Building 127. A single 500-gallon UST used to store #2 fuel oil is associated with Building 130. Two 4,700-gallon USTs located beneath the center courtyard of Building 134 are used to store #4 heating oil for the MATES furnace.

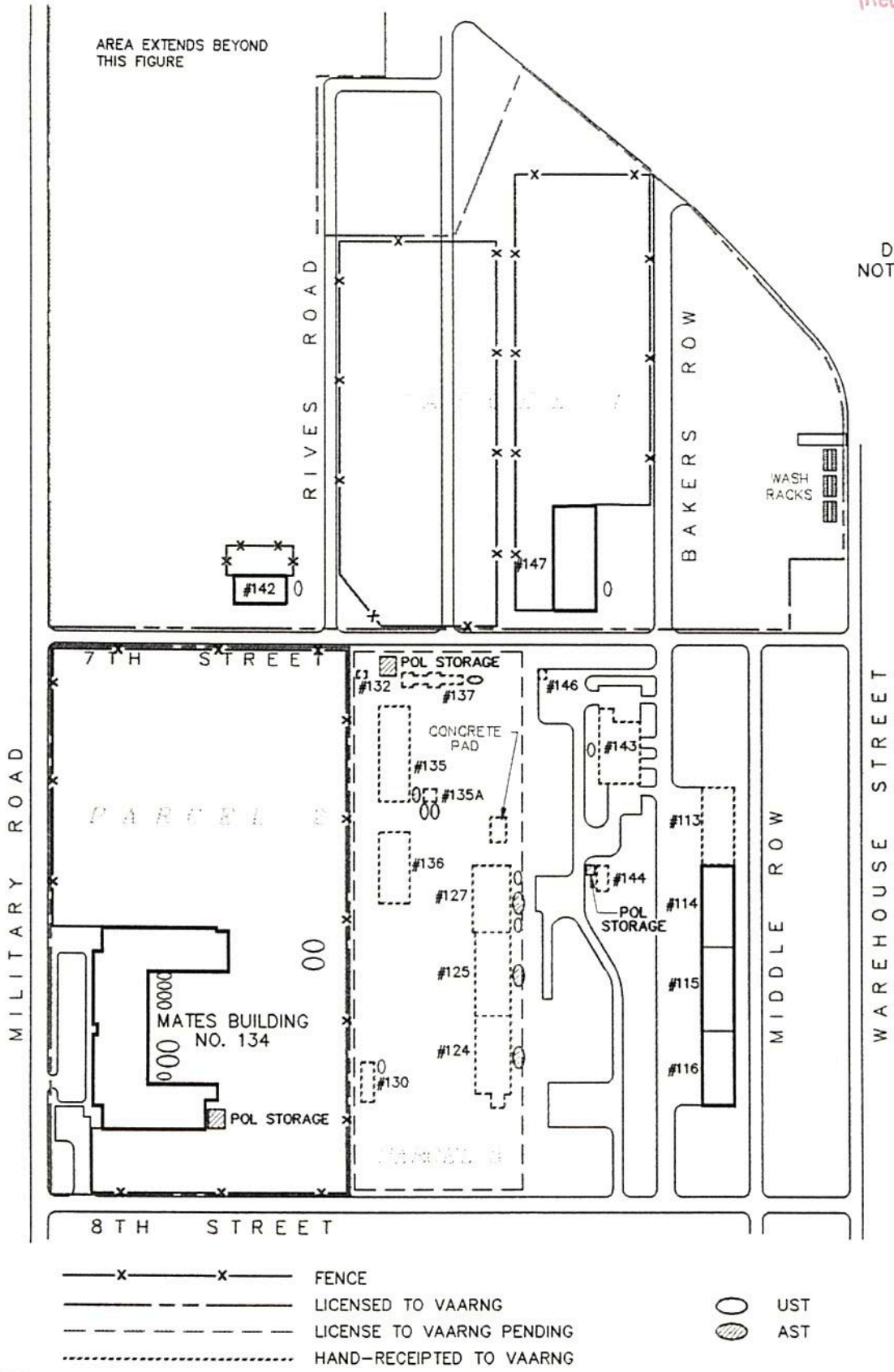
A 500-gallon steel UST is also located beneath the center courtyard of Building 134 that is used to store used oil prior to its use in the MATES furnace (see Photo 25). The used oil stored in this tank from operations in Building 134, as well as several others, is mixed with



ORIGINAL  
(Red)



DRAWING  
NOT TO SCALE



DESIGNED	EM.	1/84
DRAWN	BGP.	1/84
CHECKED	KW.	1/84
APPROVED	DHK.	1/84

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FIGURE NO. 5	
FORT PICKETT VAARNG MATES FACILITY	
Non-CERCLA Sources	
CONTRACT NO.: 92307.714	

virgin fuel oil and burned to provide heat for Building 134 (Paulette, 1994). In 1991, two samples of the used oil were found to contain elevated levels of chromium. The levels detected (5.05 parts per million (ppm) and 3.45 ppm) were considered anomalies and no regulatory action was taken (Dudley, 1994). Analytical data is presented in Appendix F.

There are four additional 275-gallon USTs associated with Building 134. Two of these USTs are used to store #2 fuel oil. Two of these USTs are no longer used, but were formerly used to store #2 fuel oil. Two 7,000-gallon fiberglass USTs are located at the Building 134 refueling area, and are used to store gasoline and diesel fuel.

Two 4,000-gallon fiberglass USTs are located adjacent to Building 135A and are used to store #2 fuel oil for the furnace in the building. There are three 1,000-gallon #2 fuel oil USTs associated with Buildings 142, 143, and 147 (Williams, 1994).

#### 2.6.2 Above-ground Storage Tanks (AST)

A total of five ASTs are located in the VAARNG MATES area of Fort Pickett. Three 250-gallon ASTs are located outside the Building 124/125/127 complex that store heating oil and kerosene (see Photo 26). One 500-gallon AST storing diesel fuel is located adjacent to Building 135A. One 275-gallon AST storing kerosene is located adjacent to Building 137.

#### 2.6.3 POL Storage Areas

There are several areas of bulk POL storage on the VAARNG MATES portion of Fort Pickett. The MATES building (Building 134) has a bulk storage area at the eastern end of the south wing. This area contains hydraulic fluid, oil, lubricants, and antifreeze. A small bulk storage area containing hydraulic fluid and lubricants is located adjacent to Building 144. A large bulk storage area associated with Building 135 is located in an open area between Buildings 132 and 137.

### 3.0 GROUNDWATER PATHWAY

#### 3.1 Soils Information and Hydrogeology

##### 3.1.1 Soils

The soils covering the area of Fort Pickett in Nottoway County consist of four major associations (mixtures of different soil types). The Appling-Cecil-Durham Association covers more than 50 percent of the area. It is a deep, well-drained, mostly undulating soil overlying granite-gneiss. The permeability of this association is moderate. The Appling-Louisburg-Cecil Association is a deep, well-drained to shallow excessively drained, undulating to rolling soil that overlies granite and granite-gneiss. The permeability of this association is moderate. The Appling-Durham-Louisburg Association is a deep, well-drained, undulating to rolling soil that overlies granite and granite-gneiss. The permeability of this association is moderate. The Durham-Appling-Worsham Association is a deep, well-drained to moderately well-drained, nearly level soil that overlies granite or granite-gneiss. The permeability of this association is moderate (USACOE, 1991). The hydraulic conductivity of these soils is approximately  $1 \times 10^{-6}$  centimeters per second (USEPA, 1992).

In general, the surface soil associations of Fort Pickett are similar, except for variations in topography and depth to bedrock (ESE, 1982). Hydric and alluvial soils may be associated with the creeks, streams, and drainage swales on Fort Pickett (USACOE, 1991).

##### 3.1.2 Geology

The Commonwealth of Virginia is divided into five major physiographic provinces. The Piedmont province, of which Fort Pickett is a part, consists of older Precambrian gneiss, schist, and granite (USACOE, 1991). Gneiss is a coarse-grained rock with a banded appearance consisting of alternating layers of different minerals such as feldspar, quartz, and mica. Schist



is any of a group of rocks containing parallel layers of flaky materials, such as mica and talc, that splits easily into thin parallel leaves.

Fort Pickett lies approximately 10 miles west of the fall line between the Piedmont and the Coastal Plain provinces. The rock beneath the installation consists of Petersburg granite to the east and gneiss and schist of undetermined age to the west. The surface features of the bedrock is highly irregular due to intense weathering. There are bedrock outcrops in some areas while in other areas the bedrock may be in excess of 50 feet below the surface (USACOE, 1991).

Gravel, sand, silt, and clay cover most of the underlying rock. The majority of the sediment cover is the end product of rock decomposition. In some areas, rock that has decomposed in place (saprolite) exists between the sediment cover and the bedrock. This saprolite consists of a highly variable thickness of various decomposition products, ranging from rock fragments to clay. In some areas, the saprolite is indistinguishable from the sediment cover (USACOE, 1991).

There is no evidence of karst topography and the associated areas of rapid groundwater movement in the area of Fort Pickett. There was no record of citizen complaints or well closures associated with Fort Pickett.

### 3.1.3 Groundwater

The groundwater system underlying Fort Pickett probably exists as a multi-aquifer system, with producing zones or aquifers located in local lenses of sand or gravel, saprolite, or in rock fractures. These zones are separated both laterally and vertically by impermeable sediments or unfractured rock. Groundwater in this type of area is produced from three major sources; permeable zones of sand or gravel within the sediments; broken rock, gravel, or sand within the saprolite zone; or in fractures within the rock (USACOE, 1991).

In areas where it is present, the saprolite zone is usually the most productive of these sources. The general direction of groundwater flow is probably toward the low areas, where the groundwater discharges to streams. Regional recharge results directly from rainfall at the site. Foundation boring information indicates that the depth to the shallowest aquifer varies from 6 to 32 feet below grade (USACOE, 1991).

### 3.2 Groundwater Targets

The nearest well to the VAARNG MATES facility is annotated on the target study area map (Appendix D) and is located approximately 1.6 miles away (ASI, 1990). There are no sampling data from this well. The aquifers are not continuous over large areas (USACOE, 1991), therefore it could not be determined if the target well is up-gradient or down-gradient from any potential source.

There are no public potable water wells within the 4-mile radius target distance limit. The majority of the population within the target distance limit (the city of Blackstone and Fort Pickett) is served by a municipal water system. The intake for this system is from the Nottoway Reservoir, a surface water body that was created behind a dam on the Nottoway River. The entire reservoir, and thus, the supply system intake, is upstream of the Probable Point of Entry (PPE) of contaminants from the VAARNG MATES area into the Nottoway River. The population residing outside the distribution area of the municipal system is therefore assumed to obtain its potable water from private groundwater wells that are located at house sites. Detailed census information for this population was not readily available. In order to obtain this population, a house count was performed for each ring in the 4-mile target distance limit. This house count, combined with the average number of persons per household in Nottoway County (2.58) provided by the County Planner (Prosise, 1994) yielded the data in Table 1 below. As there is no indication of existing contamination, the populations below are considered secondary targets.

There are no commercial food preparation, commercial food or forage crop, or commercial aquaculture facilities utilizing groundwater within the target distance limit. The few livestock farms utilizing groundwater within the target distance limit do not constitute commercial livestock areas (Weston, 1992).

**Table 1 - Population Served by Groundwater Wells**

Radius from Site	House Count	Population
0 to 1/4 mile	0	0
1/4 to 1/2 mile	0	0
1/2 to 1 mile	0	0
1 to 2 miles	157	405
2 to 3 miles	263	679
3 to 4 miles	152	392
Total	572	1,476

There are also no major or designated recreation areas utilizing groundwater within the target distance limit (Weston, 1992). There are no Wellhead Protection Areas (Section 1428 of the Safe Drinking Water Act) within the target distance limit (Weston, 1992).

### 3.3 Groundwater Conclusions

The soils underlying the VAARNG areas of Fort Pickett are moderately permeable and would be conducive to contaminant migration in the event of any prior or future release of hazardous substances. The aquifers are not continuous over large areas (USACOE, 1991); therefore, it could not be determined if the target well is up-gradient or down-gradient from any potential source. The potential for the transport of groundwater contamination would be limited.

The nearest potable water well to the sources outlined in Section 2.0 is located 1.6 miles from the VAARNG MATES facility. The groundwater gradient in this area is not well defined



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(USACOE, 1991). The populations served by private groundwater wells within the target distance limit area are minimal and are considered secondary targets because there is no suspected release of contamination. There are no resources (as specified in the PA guidance) or Wellhead Protection Areas within the target distance limit.

Hazardous substances at the VAARNG areas of Fort Pickett should not have a significant impact on any groundwater targets, due to the limited quantity of substances present, the integrity of the storage devices, and management practices in place at Fort Pickett.

## 4.0 SURFACE WATER PATHWAY

### 4.1 Hydrologic Setting

The topography of Fort Pickett is primarily undulating to rolling, but there are narrow, hilly, and steep areas adjacent to streams. Elevations range from 200 feet along the Nottoway River in the southern portion of the installation to 430 feet along the northern boundary.

As shown in Figure 2, the majority of Fort Pickett is drained by the Nottoway River and its tributaries, principally the Little Nottoway River. Other tributaries include Birch Creek, Tommeheton Creek, and Hurricane Branch. The Nottoway River and its tributaries lie within the Chowan River Basin. The Nottoway Reservoir, which was formed by damming the Nottoway River at the southwest corner of the installation, covers an area of approximately 385 acres. The Nottoway River and its tributaries are classified as Virginia Class III waters. Class III waters are defined as non-tidal waters in the Coastal and Piedmont zones. Sampling data for the Nottoway Reservoir collected between 1972 and 1977 show that the average concentrations of silver, cadmium, and mercury exceeded the water quality limits at that time. These limits are meant to be protective of the most sensitive aquatic life and are more stringent than drinking water standards. The pesticide levels in the reservoir were reported to be below analytical detection limits and no significant radioactivity was detected (Weston, 1992). Operations at Fort Pickett could not have contributed to the elevated metals and pesticides levels, as the outfall from the installation enters the Nottoway River downstream of the reservoir. Water quality data from a gauging station approximately 15 to 20 miles downstream of the Principal Point of Entry (PPE) from the VAARNG MATES facility do not indicate the migration of any toxic or hazardous materials from Fort Pickett (Weston, 1992).

The VAARNG MATES facility is not within a 100-year or 500-year floodplain (Weston, 1992). The drainage area of the facility was calculated to be approximately 96 acres. The 2-year, 24-hour rainfall event was estimated at 2.8 inches (ASI, 1990). The arithmetic mean annual precipitation is 42.1 inches (ESE, 1982).

The PPE from the VAARNG area of Fort Pickett is to Hurricane Branch, a tributary of the Nottoway River. The PPE is located approximately 3,150 feet west-northwest of the closest potential source. Approximately 8 miles downstream from the PPE this tributary enters Nottoway River. The remainder of the 15-mile-downstream target distance limit is located in the Nottoway River. The flow rates associated with Hurricane Creek and the Nottoway River are approximately 135 and 370 cubic feet per second, respectively (Weston, 1992).

#### 4.2 Surface Water Targets

A target study map is presented in Appendix D. There are no reported potable water, commercial livestock watering, commercial food preparation, or major designated recreation area water intakes within the 15-mile-downstream target distance limit. Surface water is withdrawn within the target distance limit for the irrigation of commercial tobacco crops. However, this tobacco is not used for food or forage. It has been reported that section of the Nottoway River within the target distance limit is usable for drinking water (Weston, 1992).

Although there are no commercial fishing operations within the target distance limit, the Nottoway River has been designated a warm water fishery by the Commonwealth of Virginia and recreational fishing does occur within the target distance limit (Weston, 1992; ASI, 1990). Although several agencies were surveyed, including the local U.S. Fish and Wildlife Service office and Nottoway County officials, but production rates associated with this recreational fishing were not available.

There are approximately 10 miles of wetland frontage (wetlands that are contiguous with the surface water pathway) within the target distance limit. In addition, habitat used by the Roanoke Log Perch, a Federally-listed endangered species, is located in the Nottoway River downstream of Fort Pickett (Weston, 1992).

As there has not been an indication of actual contamination, the targets discussed above are considered secondary targets.



#### 4.3 Surface Water Conclusions

Due to the overland distance to the nearest surface water body and the permeability of the surface soils, it is unlikely that any prior or future releases of hazardous substances from the VAARNG area of Fort Pickett would affect surface waters or surface water targets in the area. There is no threat to the resident population as there are no potable water intakes within the target distance limit. Due to the distance and dilution associated with the Nottoway River, the recreational fishing along the river is of only minor concern. The sensitive environments noted, the habitat of a Federally-listed endangered species and the wetland frontage, are considered secondary targets.

## 5.0 SOIL EXPOSURE AND AIR PATHWAY

### 5.1 Physical Conditions

The only area of potential soil contamination identified in the document search and site visit associated with this investigation was in the vicinity of Building 137 (Source 5). The results of a pre-demolition investigation are summarized in Section 2.5.5. Contaminants of concern include lead and TPH. Only lead is considered further in this report as petroleum hydrocarbons are excluded from CERCLA regulation. Further sampling of the paint on Building 137 and soils surrounding the building footprint would be required to establish if the contamination present exceeds health-based benchmark levels.

According to available documentation, there has not been a documented uncontrolled release of CERCLA hazardous substances to the air pathway from any area of the VAARNG MATES facility on Fort Pickett. The volatile organic solvents that are used in the VAARNG MATES facility are kept in secure lockers or self-contained parts cleaning stations. Several of the identified potential sources are regular work sites.

The pesticide application records for the VAARNG area of Fort Pickett were only available for the last two years. On June 6, 1992, one pound of 0.005 percent Brodifacoum (3-[3-(4'-bromo[1-1'-biphenyl]-4-yl)-1,2,3,4-tetrahydro-1-naphthalenyl]-4-hydroxy-2H-1benzopyran-2-one) was applied in the vicinity of Building 124. On August 27, 1992, 50 linear feet in the vicinity of Building 125 was spot-treated with 20 gallons of 1 percent Dursban-TC (O,O-diethyl O-(3,5,6-trichloro-2-pyridinyl)phosphorothioate). On June 29, 1993, one pound of 0.02 percent Resmethrin (5-benzyl-3-furylmethyl (1RS)-cis,trans-chrysanthemate) aerosol was applied in the vicinity of Building 142. This treatment was repeated on July 27, 1993. On November 20, 1993, one pound of 0.005 percent Brodifacoum was applied in the vicinity of Building 113 (Wynn, 1994).

There are no records of citizens complaints found during the document review. No odors were noted during the site visit.

## 5.2 Soil Targets

A target study map is presented in Appendix D. Regarding the resident population threat, the Building 137 area is not located within 200 feet of any residences, schools, or day-care centers. The worker population of Buildings 135 and 132 are located with 200 feet of Building 137. This worker population varies by day and workload, but is approximately 20 to 30 persons. There are no areas of commercial agriculture, commercial silviculture, commercial livestock production or grazing, or terrestrial-sensitive environments in the vicinity of Building 137 (Weston, 1992).

Regarding the nearby population threat, Building 137 is considered accessible, with no public recreation use. The nearby worker population figures for areas within the 1-mile-radius target distance limit are provided in Table 2 (Weston, 1992).

**Table 2 - Nearby Population**

<b>Radius from Site</b>	<b>Population</b>
0 to 1/4 mile	400
1/4 to 1/2 mile	1,500
1/2 to 1 mile	1,200

## 5.3 Air Targets

A target study map is presented in Appendix D. There are no areas of commercial agriculture or designated recreational areas within one-half mile of the VAARNG MATES area. There are areas of commercial silviculture on the eastern and northern sections of Fort Pickett, but these areas are not located within one-half mile of the MATES facility (Weston, 1992).



To calculate the population within each ring of the target distance limit, certain assumptions were made. First, the figures for the soil exposure pathway were assumed for the 0- to 1/4-mile, 1/4- to 1/2-mile, and 1/2- to 1-mile rings in the target area surrounding the VAARNG MATES facility. Second, the town of Blackstone is located within the 1- to 3-mile rings, with approximately three-quarters of the town in the 1- to 2-mile ring. The most recent census data (1992) provided by the Town Manager (Palmore, 1994) showed a residential population of 3,840. This figure was divided proportionally between the 1- to 2-mile and 2- to 3-mile rings. Finally, the populations within the various rings of the target study area outside the town limits were assumed to be equal to those calculated for the populations using private wells as indicated in Table 1. The respective population figures and final totals for each ring within the target distance limit are provided in Table 3.

**Table 3 - Resident Population within the Target Distance Limit**

Radius from Site	Population outside Blackstone	Population within Blackstone	Final Population
0 to 1/4 mile	400	N/A	400
1/4 to 1/2 mile	1,500	N/A	1,500
1/2 to 1 mile	1,200	N/A	1,200
1 to 2 miles	405	2,880	3,285
2 to 3 miles	679	600	1,279
3 to 4 miles	392	N/A	392
Total			8,056

There are in excess of 650 acres of wetlands within the 4-mile-radius target distance limit. The acreage in each range of the target distance limit is presented in Table 4.

In addition, habitat of a several Federally-listed endangered and candidate species exists on Fort Pickett. The exact location of these species is not known, but is likely to be within the

target distance limit (Dyke, 1994). Table 5 presents a list of the species thought to be resident at Fort Pickett.

**Table 4 - Wetland Acreage**

Radius from Site	Wetland Acreage
0 to 1/4 mile	0
1/4 to 1/2 mile	1.5
1/2 to 1 mile	9
1 to 2 miles	70
2 to 3 miles	160
3 to 4 miles	415
Total	655.5

**Table 5 - Endangered and Candidate Species**

Common Name	Scientific Name	Legal Status
Michaux's sumac	<i>Rhus michauxii</i>	Federal Endangered
Bachman's sparrow	<i>Aimophila aestivalis</i>	Federal Candidate
Yellow lance	<i>Elliptio lanceolata</i>	Federal Candidate
Atlantic pigtoe	<i>Fusconaia masoni</i>	Federal Candidate

#### 5.4 Soil Exposure and Air Pathway Conclusions

The only area of potential soil contamination on the VAARNG MATES area of Fort Pickett is on, and in the vicinity of, Building 137. This building is scheduled for demolition by the U.S. Army Garrison, Fort Pickett, and plans have been made to mitigate any areas of known contamination (Foley, Williams, 1994). The likelihood of this area of contamination having an impact on the soil and air exposure pathways is minimal.

There was no evidence found during the site visit and document review of air contamination from any VAARNG MATES facility.

Current practices, with respect to hazardous substances, should not have a significant impact on any soil exposure or air pathway targets, due to the limited quantity of substances present, the integrity of the storage devices, and management practices in place at Fort Pickett.



## 6.0 CONCLUSIONS AND RECOMMENDATIONS

Engineering Technologies Associates, Inc. (ETA) performed a Preliminary Assessment of the VAARNG areas of Fort Pickett, including a site visit and a review of all available relevant documents. No environmental sampling was conducted. However, available analytical data was reviewed. Based on the results of the site reconnaissance and review of all available documentation, eight potential CERCLA sources have been identified on the site.

Regarding the groundwater exposure pathway, the soils underlying the VAARNG MATES area of Fort Pickett are moderately permeable and would be conducive to contaminant migration in the event of any prior or future release of hazardous substances. The aquifers are not continuous over large areas, therefore the travel of groundwater contamination would be limited. The nearest potable water well to the VAARNG MATES facility potential sources is located 1.6 miles from the facility. The aquifers are not continuous over large areas (USACOE, 1991), therefore it could not be determined if the target well is up-gradient or down-gradient from any potential source. The populations served by private groundwater wells within the 4-mile-diameter target distance limit are minimal and are considered secondary targets. There are no resources (as specified in the PA guidance) or Wellhead Protection Areas within the target study area. Hazardous substances at the site should not have a significant impact on any groundwater targets, due to the limited quantity of substances present, the integrity of the storage devices, and management practices in place at Fort Pickett.

Regarding the surface water threat, the overland distance to the nearest surface water body and the permeability of the surface soils make it unlikely that any prior or future releases of hazardous substances would affect surface waters or surface water targets in the area. There is no threat to the resident population as there are no potable water intakes within the 15-mile-downstream target distance limit. Due to the distance to, and dilution associated with, the Nottoway River, the potential impact to recreational fishing along the river is minor. The sensitive environments noted, the habitat of a Federally-listed endangered species and the

wetland frontage, are considered secondary targets because there is no suspected release of contamination.

The only area of potential soil contamination on the VAARNG MATES area of Fort Pickett is on, and in the vicinity of, Building 137. This building is scheduled for demolition by the U.S. Army Garrison, Fort Pickett, and plans have been made to mitigate any areas of suspected contamination (Foley, 1994). The likelihood of this area of contamination having an impact on any exposure pathway is minimal.

In general, current practices at the VAARNG areas of Fort Pickett minimize the potential for release of hazardous substances to the environment. Pursuant to ETA's findings during the site visit and document review, the following recommendations for further action at the site are proposed.

1. Ensure that proper precautions are taken during the demolition of Building 137 to prevent the release of contaminated soils or paints to the environment. Soils that are found to be contaminated above benchmark or action levels should be remediated.
2. The effluent from all wash racks should be routed to an oil/water separator prior to discharge to the sanitary sewer.
3. Should other buildings that were constructed prior to 1986 be scheduled for demolition, pre-demolition surveys should be conducted to determine if lead-based paint, asbestos, or other residual contamination exists.

## 7.0 REFERENCES

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- Environmental Science and Engineering, Inc., 1982. "Installation Assessment of the U.S. Army Garrison, Fort Pickett, Blackstone, VA. (Report No. 316B)". Gainesville, Florida.
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- Hawley, Jamie, 1994. Nottoway County Health Department, Environmental Health Specialist. Personal communications by telephone, January, 1994.
- Palmore, Larry, 1994. Blackstone Town Manager. Personal communications by telephone, February, 1994.
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- U.S. Environmental Protection Agency, 1992. "Hazard Ranking System Guidance Manual". (Publication 9345.1-07) Washington, D.C.
- Weston Inc., Roy F., 1992. "Preliminary Assessment Report Addendum for Fort Pickett, VA". West Chester, Pennsylvania.
- Williams, Eileen, 1994. Environmental Manager, Virginia Department of Military Affairs. Personal communication during site visit.



Wynn, Mr., 1994. Fort Pickett Entomology Shop. Personal communication.

ORIGINAL  
(Red)

ORIGINAL  
(Red)

**APPENDIX A**  
**Photographic Log**  
**(Photos taken January 19, 1994)**

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(Red)

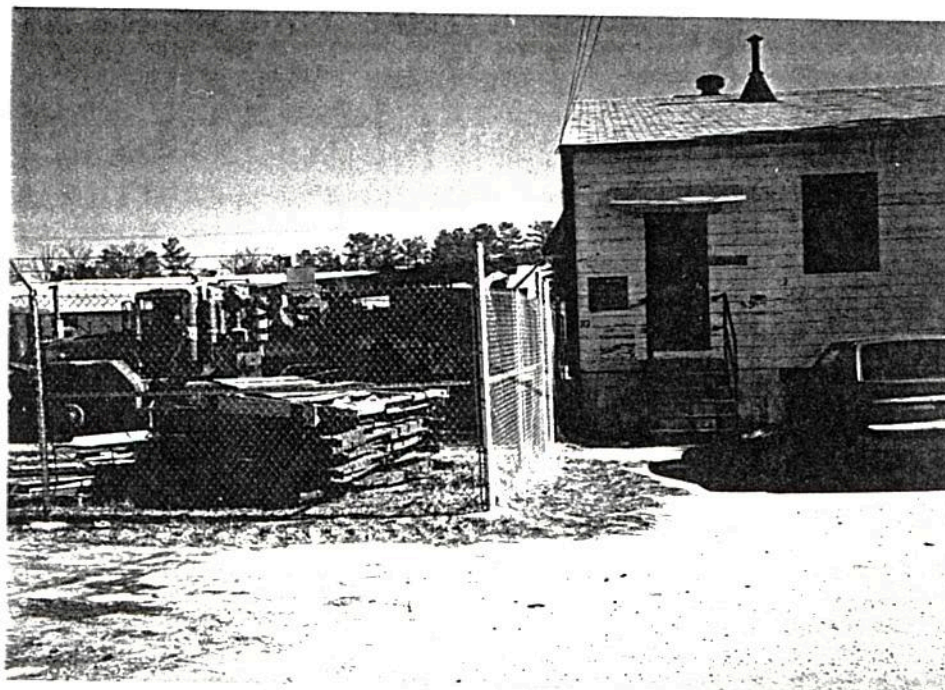


Photo 1: Building 113, facing east.

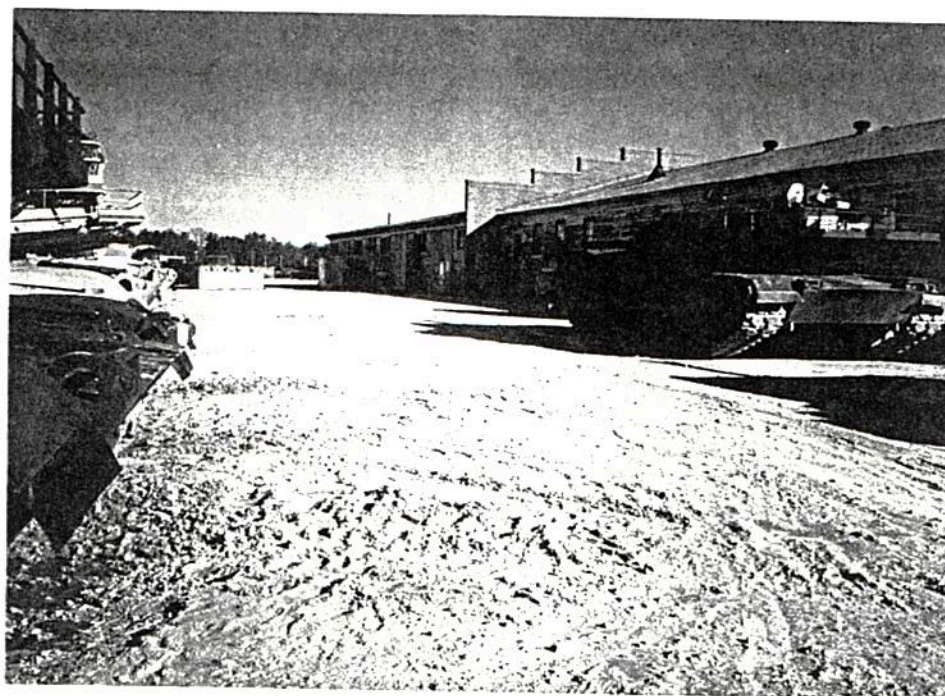


Photo 2: Buildings 125 and 127, facing north.

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DRAWN \_\_\_\_\_ DATE \_\_\_\_\_  
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Photographic Log  
Page 1

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Photo 3: Building 124, facing south.

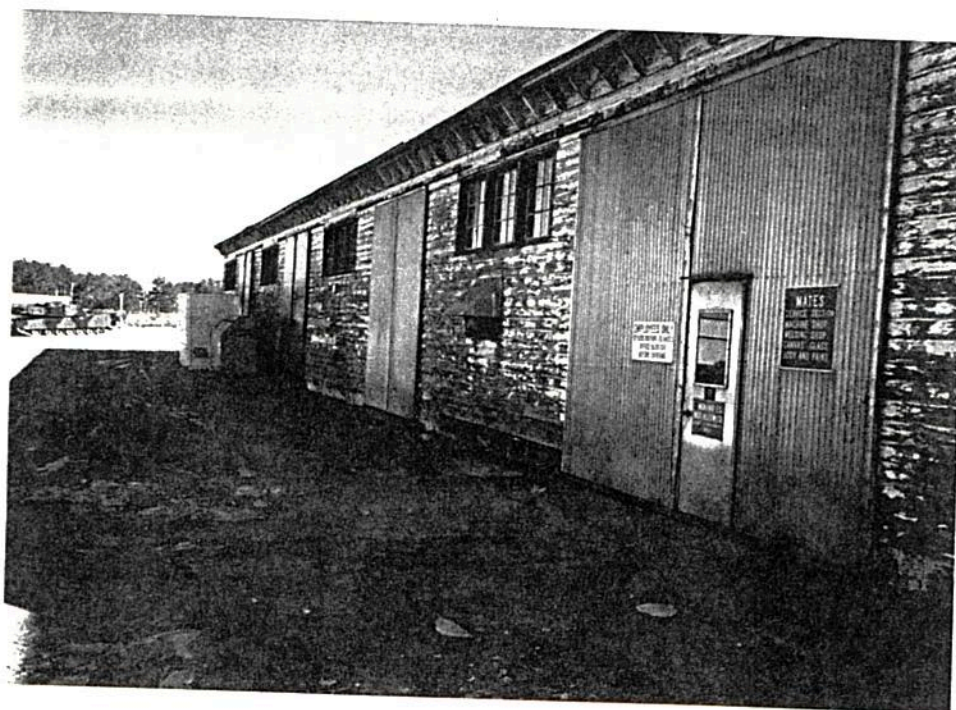


Photo 4: Building 127, facing north.

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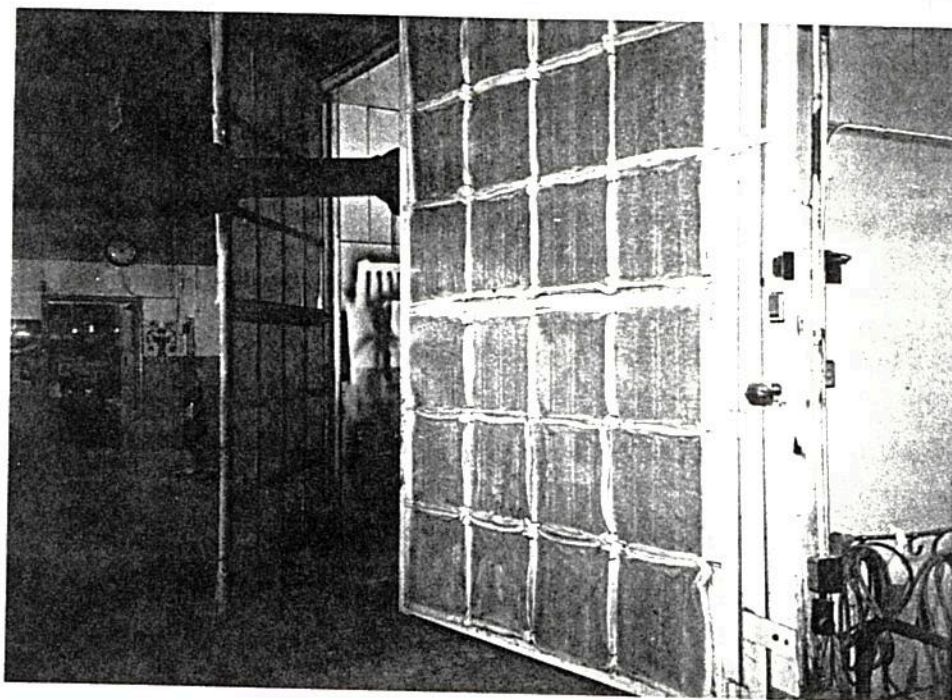


Photo 5: Paint booth inside Building 127.

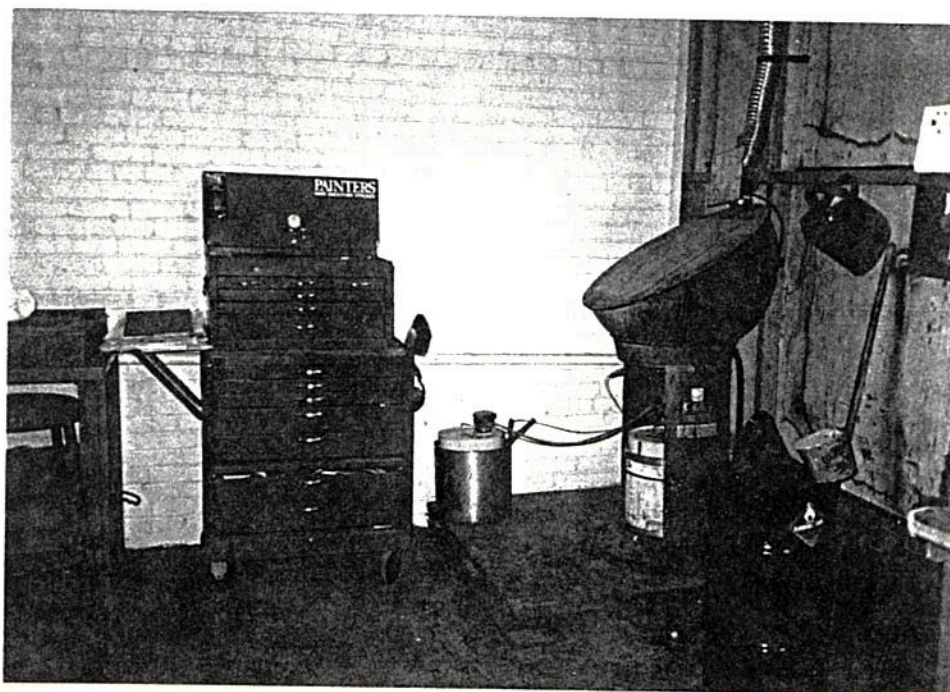


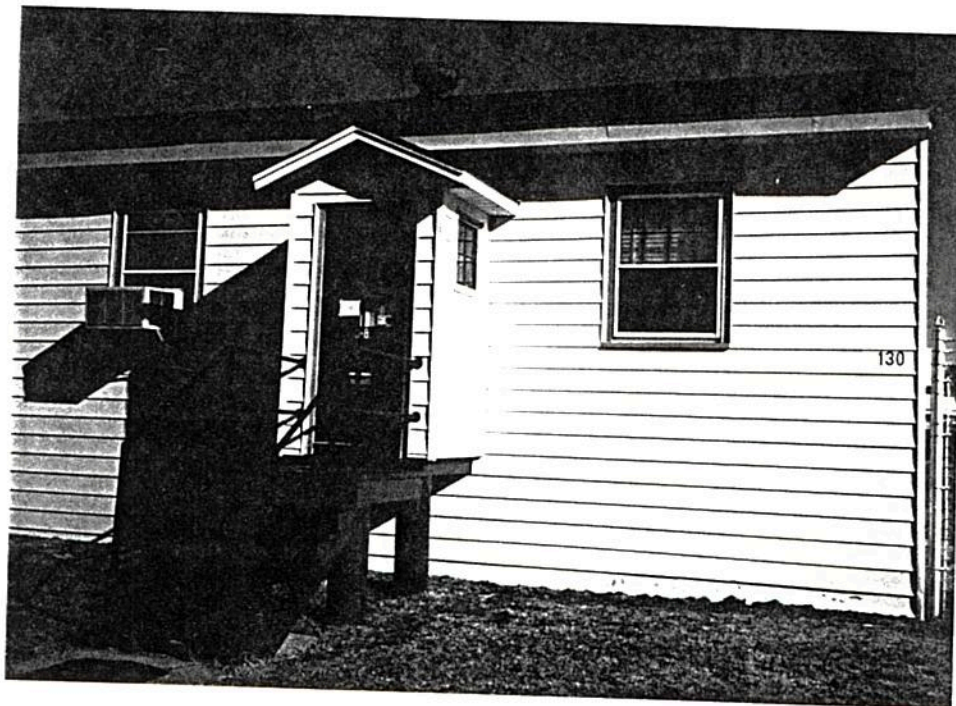
Photo 6: Safety-Kleen parts cleaning station inside Building 127.

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 Page 3**

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Photo 7: Building 130, facing east.

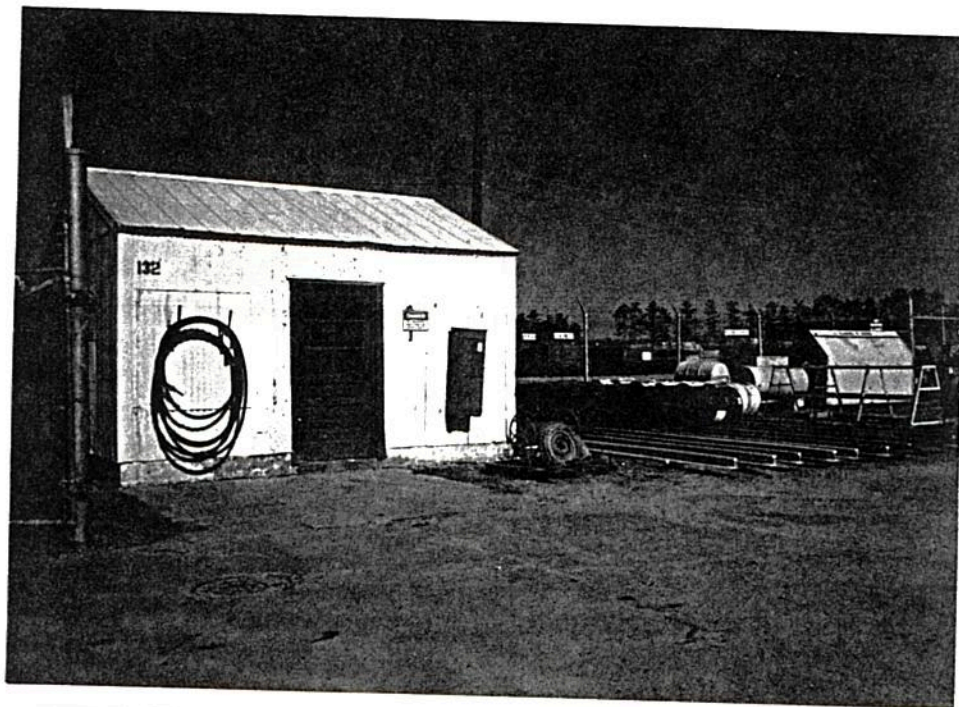


Photo 8: Building 132, facing northeast. Building 135 storage area.

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Photo 9: Building 134, western entrance.



Photo 10: Buildings 134, Battery Room.

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Page 5**

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Photo 11: Building 134, sulfuric acid storage outside Battery Room.

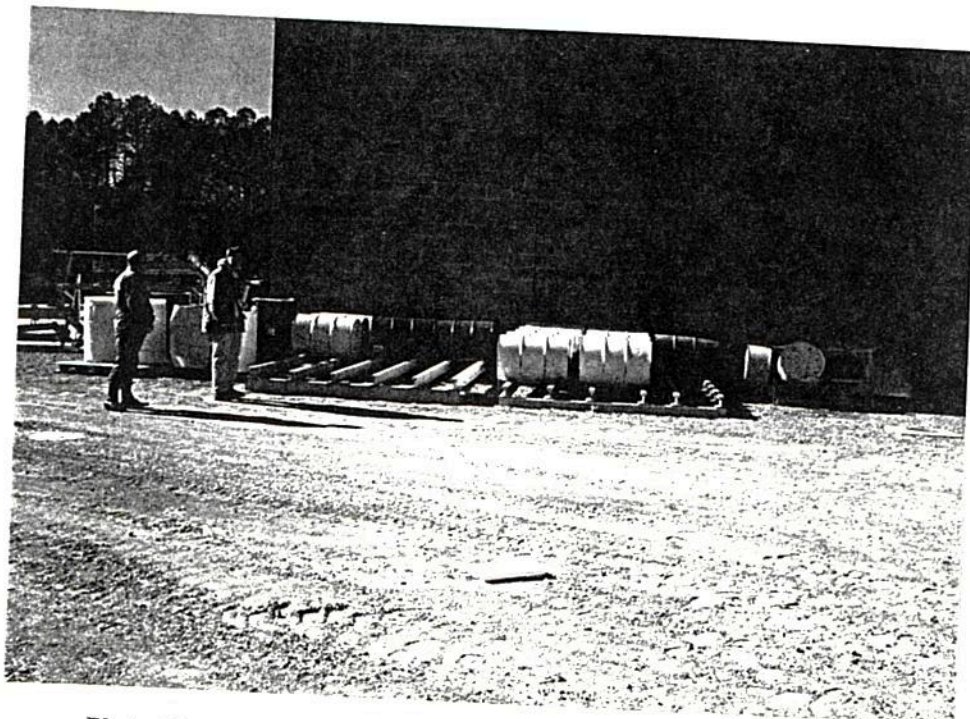


Photo 12: Building 134, POL storage adjacent to south wing.

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Photo 13: Building 135, facing southeast.

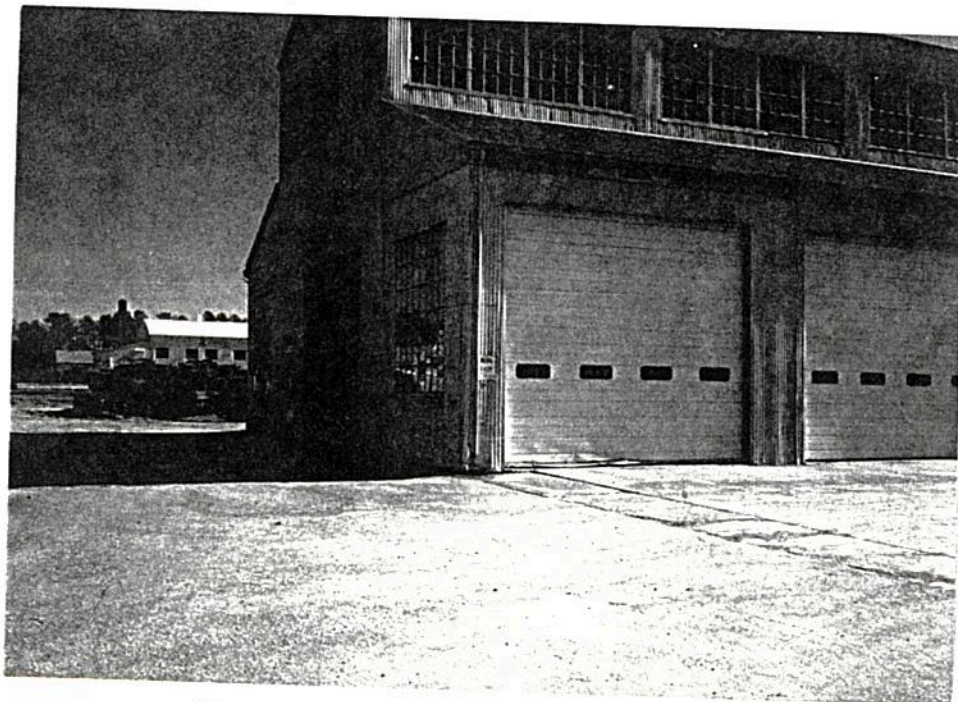


Photo 14: Building 136, northwest corner.

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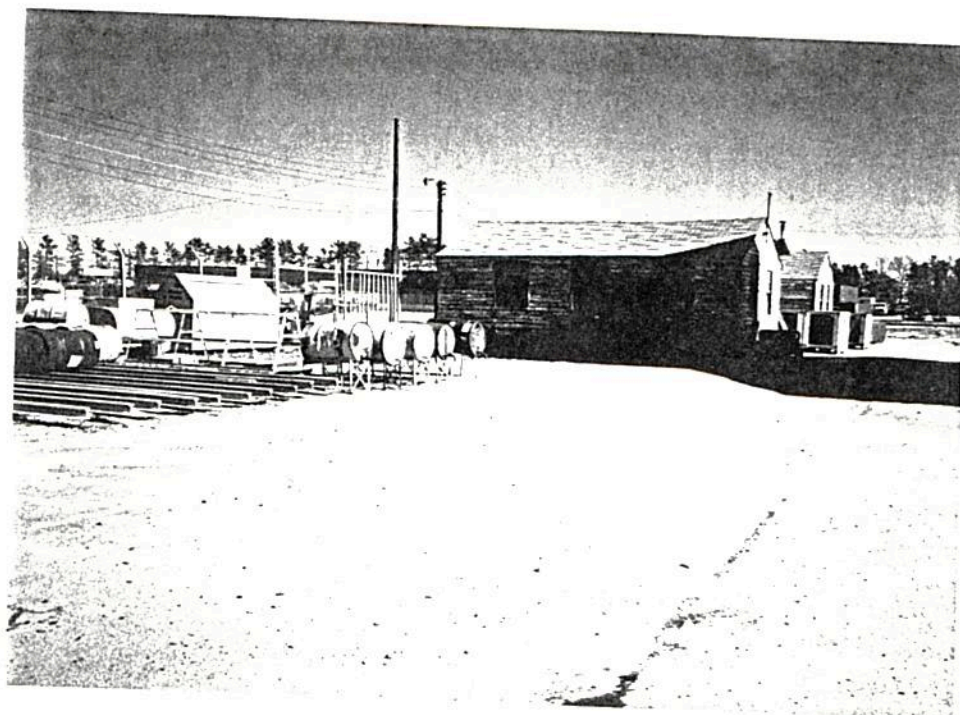


Photo 15: Building 137, facing northeast.

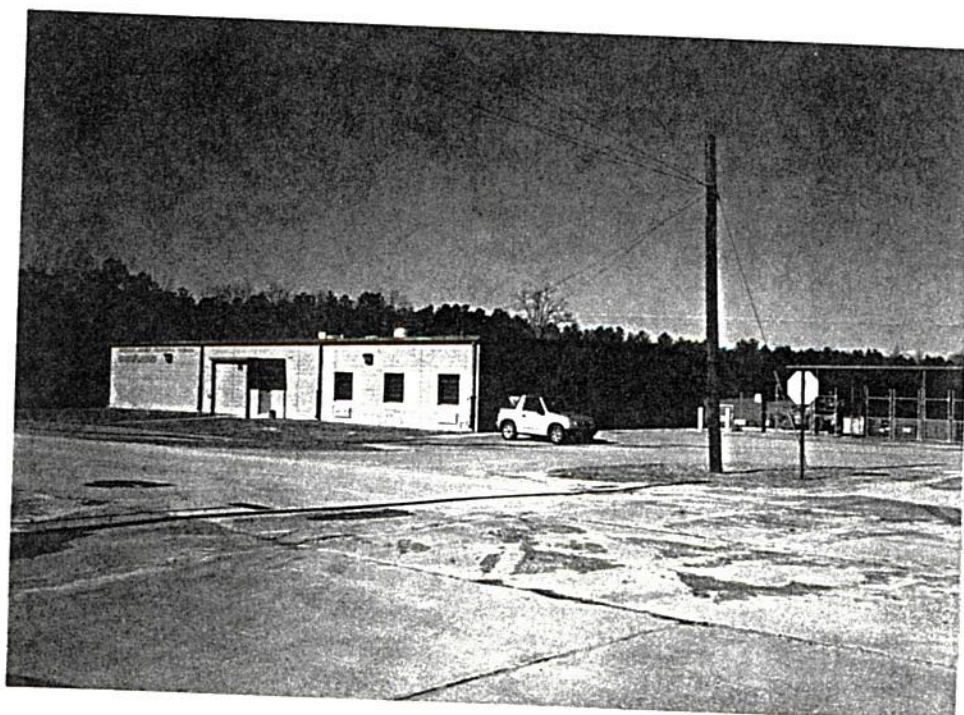


Photo 16: Building 142, facing northwest.

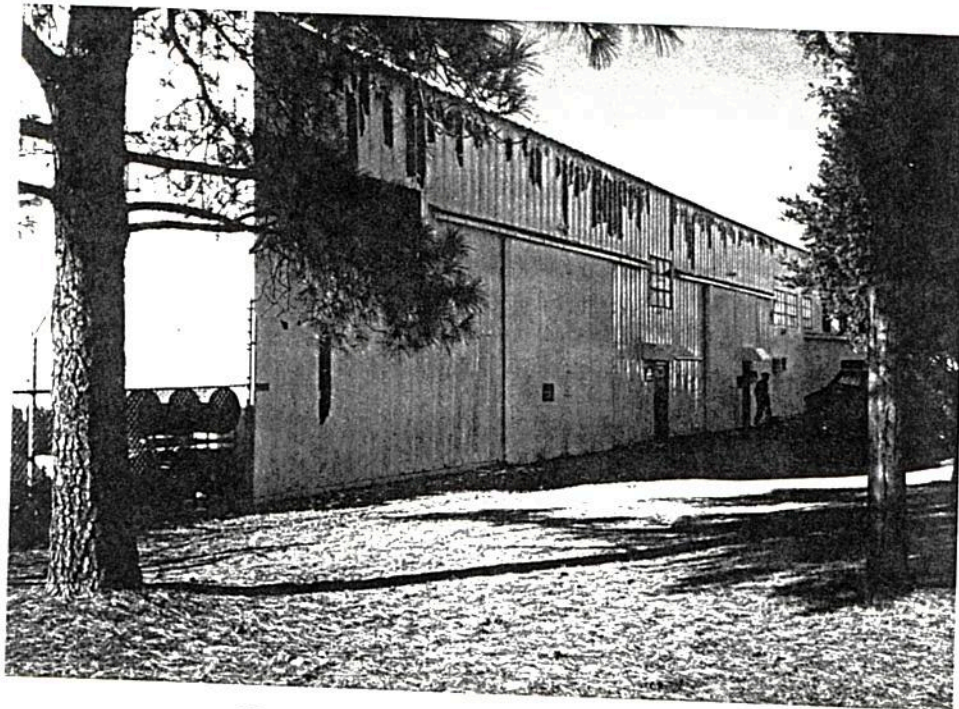
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Photo 17: Building 143, facing north.

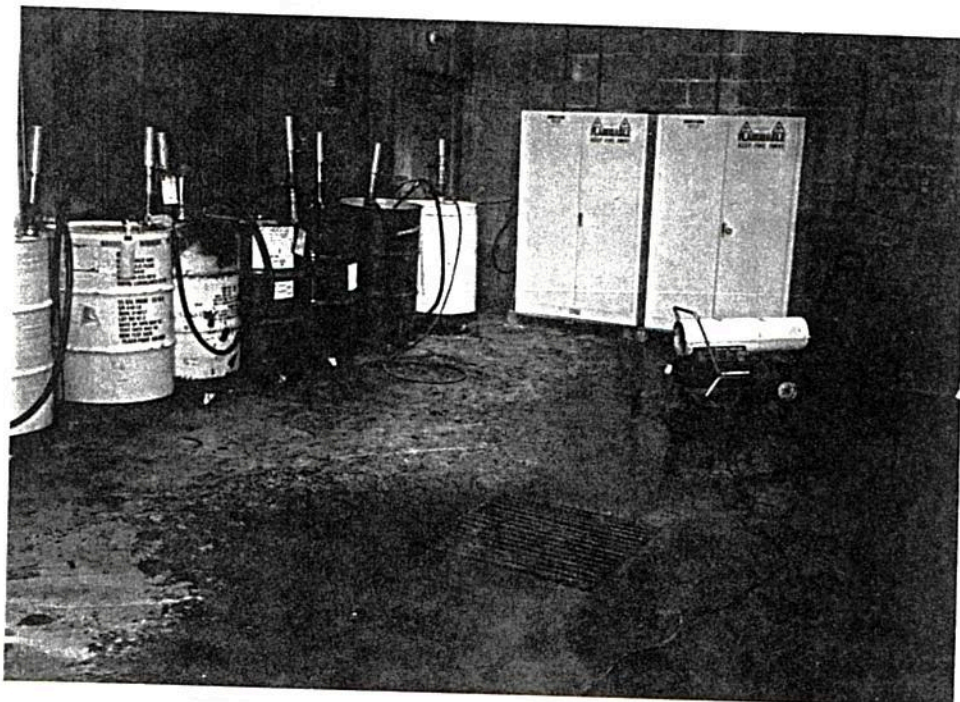


Photo 18: Building 143, washrack, floor drain, flammable storage locker.

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 Page 9**

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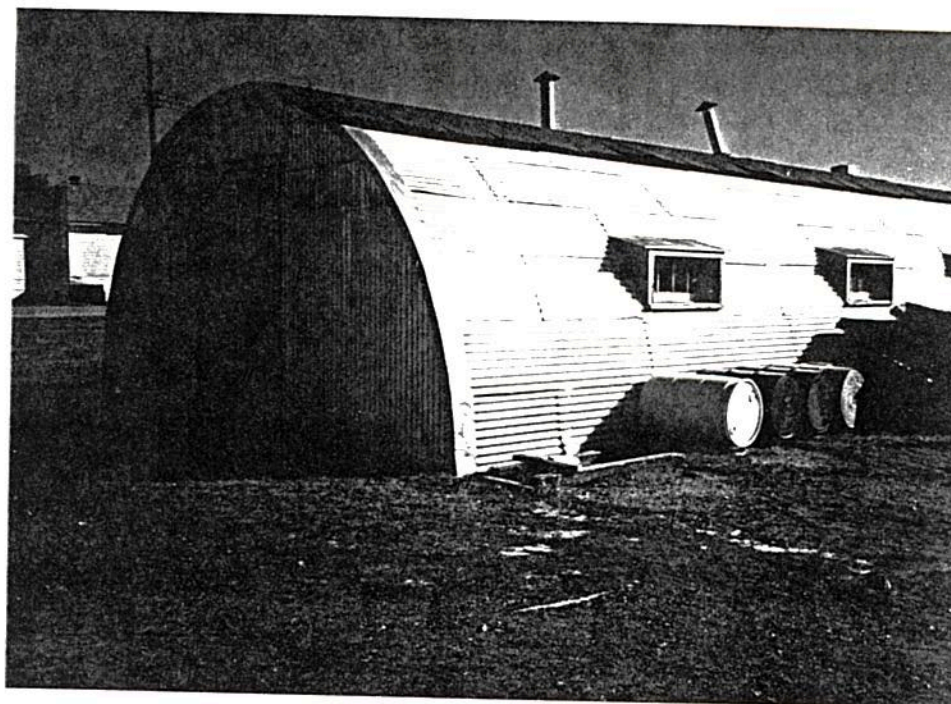


Photo 19: Building 143, northwest corner of adjacent quonset hut.

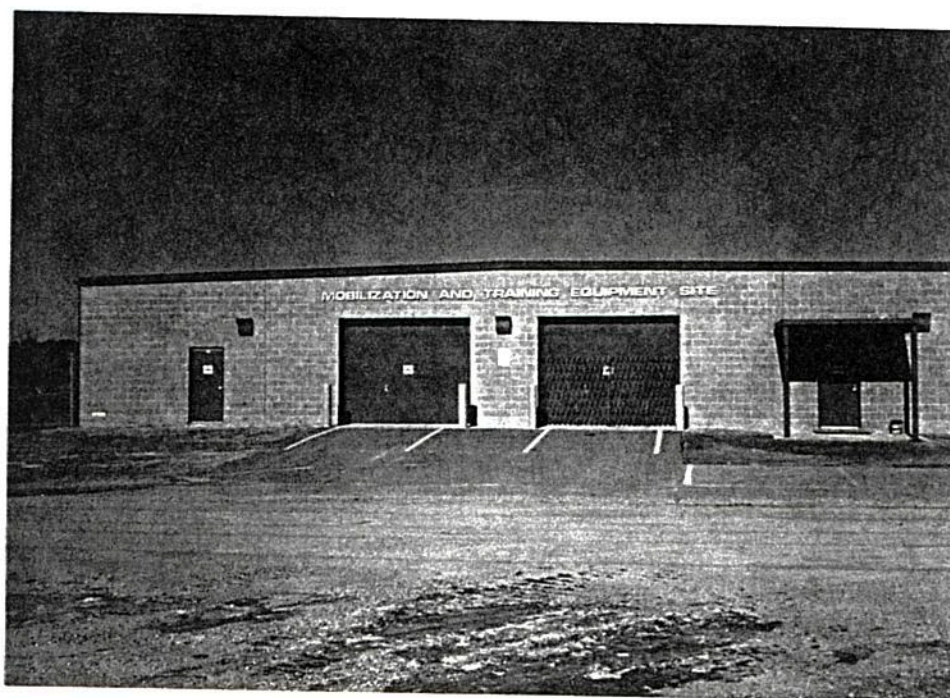


Photo 20: Building 147, facing north.

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Photo 21: Building 147, hazardous waste storage area.

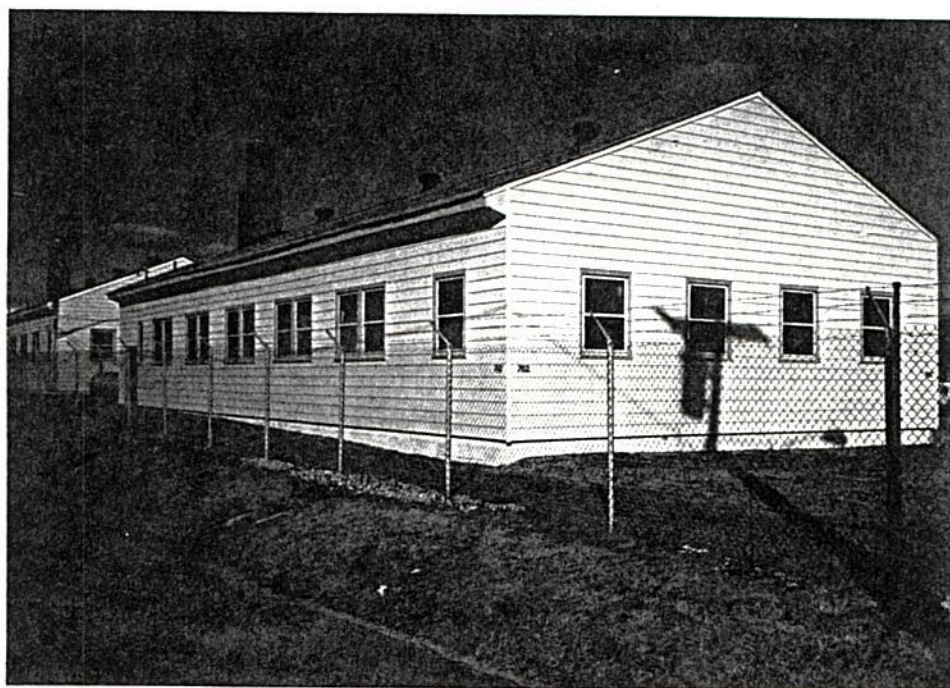


Photo 22: Building 762.

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Page 11**

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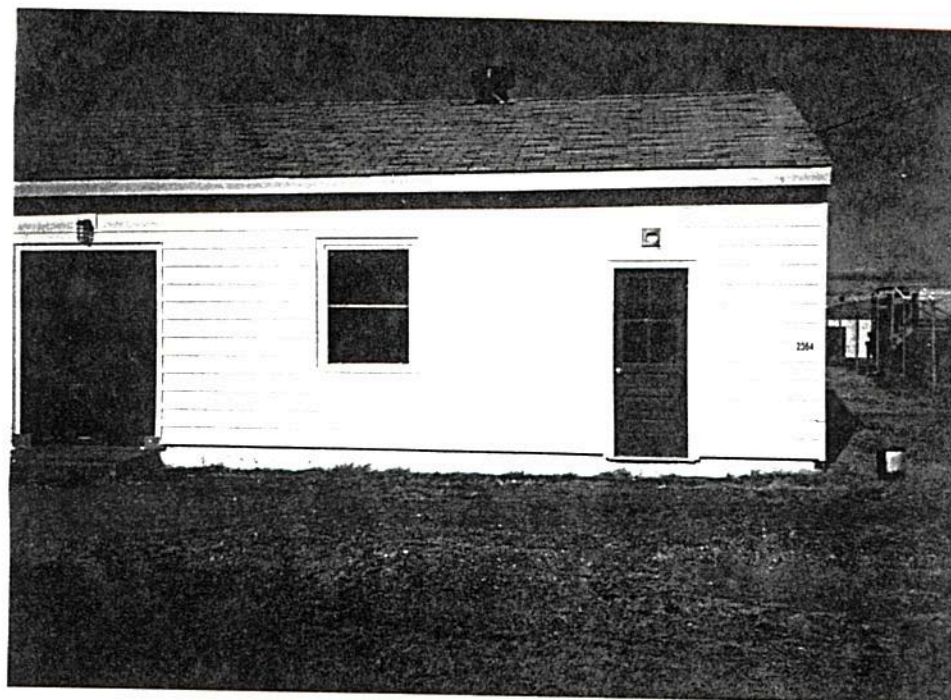


Photo 23: Building 2364.

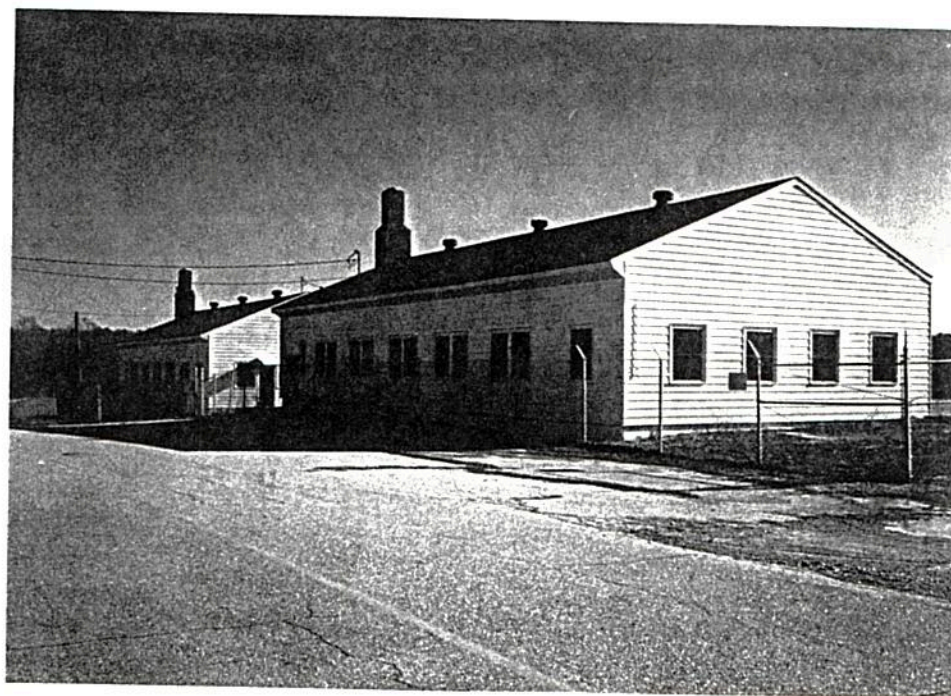


Photo 24: Buildings 2384 and 2385.

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Page 12**

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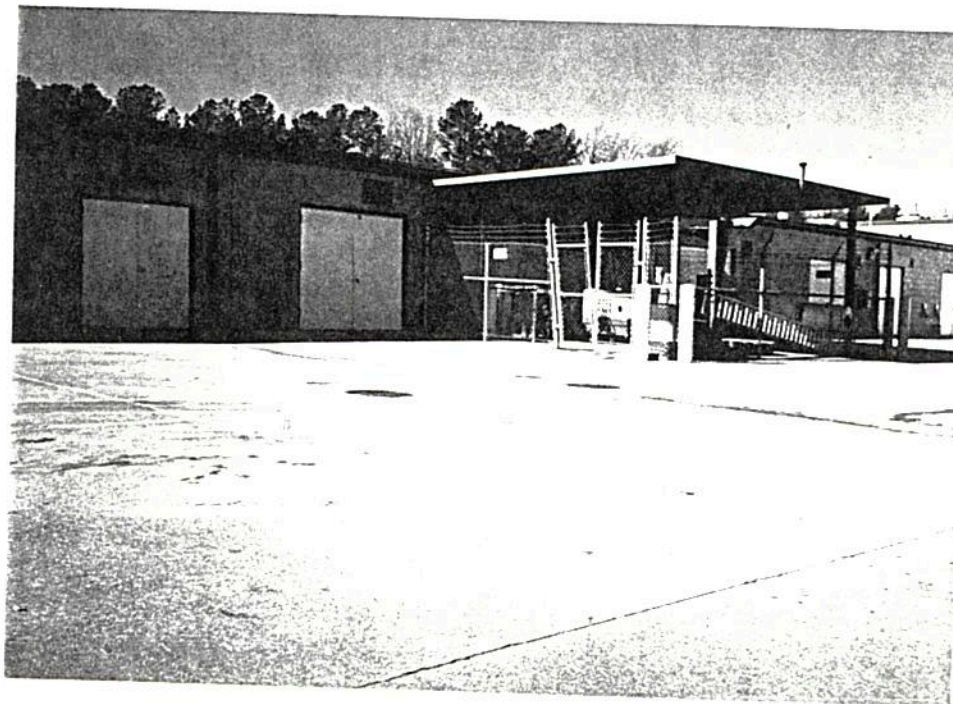


Photo 25: Building 134, used oil UST in center courtyard.

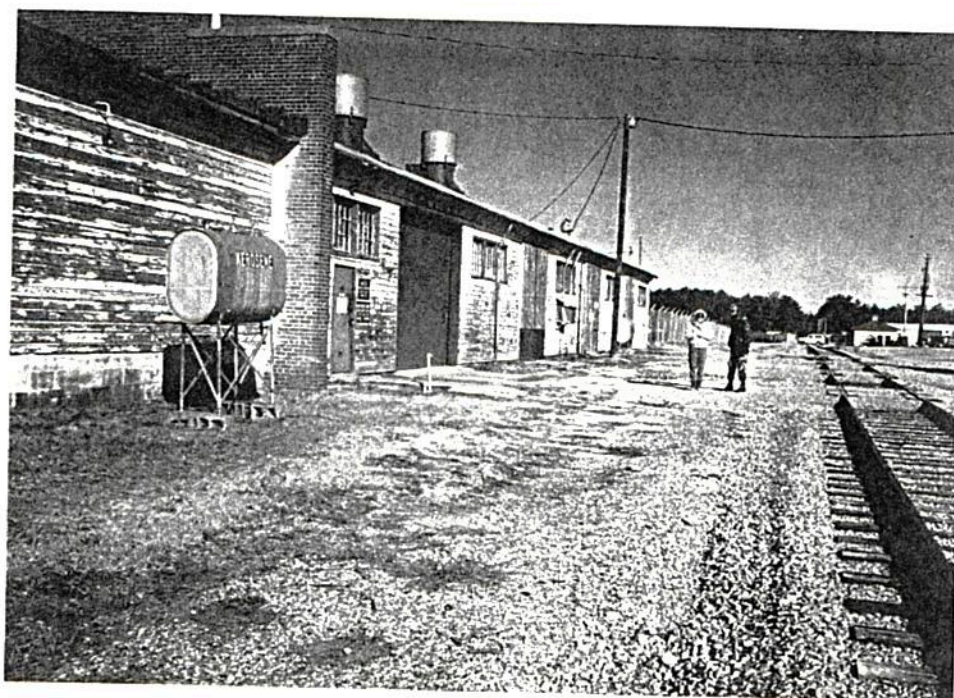


Photo 26: Building 127, eastern face looking north.

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Page 13**

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**APPENDIX B**  
**Potential Hazardous Waste Site Preliminary Assessment Form**





# Potential Hazardous Waste Site Preliminary Assessment Form

## Identification

State: VA CERCLIS Number:

CERCLIS Discovery Date:

### 1. General Site Information

Name: National Guard Facilities at  
Fort Pickett

Street Address:

City: Blackstone

State: VA

Zip Code:  
23824County:  
Nottoway

Co. Code:

Cong.  
Dist:

Latitude:

Longitude:

37° 3' 14. "N 77° 0' 58' 17. "E

Approximate Area of Site:

42 Acres

Square Ft:

Status of Site:

☒ Active ☐ Not Specified  
☐ Inactive ☐ NA (GW plume, etc.)

### 2. Owner/Operator Information

Owner: U.S. Army

Operator: Virginia Army National Guard

Street Address:  
Fort PickettStreet Address:  
Fort Pickett

City: Blackstone

City: Blackstone

State:

Zip Code:  
23824

Telephone:

(804) 292-2699

State:

Zip Code:  
23824

Telephone:

(804) 292-2699

Type of Ownership:

☐ Private☒ Federal Agency

Name: U.S. Army

☐ State☐ Indian☐ County☐ Municipal☐ Not Specified☐ Other

How Initially Identified:

☐ Citizens Complaint☐ PA Petition☐ State/Local Program☒ RCRA/CERCLA Notification☒ Federal Program☐ Incidental☐ Not Specified☐ Other

### 3. Site Evaluator Information

Name of Evaluator:

Edward Miles

Agency/Organization: Engineering  
Technologies Associates, Inc.

Date Prepared:

February 1994

Street Address: 3458 Ellicott Center Dr. Suite 101

City: Ellicott City

State: MD

Name of EPA or State Agency Contact: Ms. Eileen Williams  
VA Department of Military AffairsStreet Address:  
501 East Franklin StreetCity:  
Richmond

State:

VA

Telephone:

(804) 775-9401

### 4. Site Disposition (for EPA use only)

Emergency Response/Removal  
Assessment Recommendation:☐ Yes☐ No

Date: \_\_\_\_\_

CERCLIS Recommendation:

☐ Higher Priority SI☐ Lower Priority SI☐ NFRA P☐ RCRA☐ Other

Date: \_\_\_\_\_

Signature:

Name (typed):

Position:



Potential Hazardous Waste Site  
Preliminary Assessment Form - Page 2 of 4

CERCLIS Number: \_\_\_\_\_

### 5. General Site Characteristics

Predominant Land Uses Within 1 Mile of Site (check all that apply):

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Industrial    | <input type="checkbox"/> Agriculture    | <input type="checkbox"/> DOI                    |
| <input type="checkbox"/> Commercial    | <input type="checkbox"/> Mining         | <input type="checkbox"/> Other Federal Facility |
| <input type="checkbox"/> Residential   | <input checked="" type="checkbox"/> DOD |   |
| <input type="checkbox"/> Forest/Fields | <input type="checkbox"/> DOE            | <input type="checkbox"/> Other _____            |

Site Setting:

- ☐ Urban  
☐ Suburban  
☒ Rural

Years of Operation:

Beginning Year 1941

Ending Year Current

☐ Unknown

Type of Site Operations (check all that apply):

☐ Manufacturing (must check subcategory)

- ☐ Lumber and Wood Products  
☐ Inorganic Chemicals  
☐ Plastic and/or Rubber Products  
☐ Paints, Varnishes  
☐ Industrial Organic Chemicals  
☐ Agricultural Chemicals  
(e.g., pesticides, fertilizers)  
☐ Miscellaneous Chemical Products  
(e.g., adhesives, explosives, ink)  
☐ Primary Metals  
☐ Metal Coating, Plating, Engraving  
☐ Metal Forging, Stamping  
☐ Fabricated Structural Metal Products  
☐ Electronic Equipment  
☐ Other Manufacturing

☐ Mining

- ☐ Metals  
☐ Coal  
☐ Oil and Gas  
☐ Non-metallic Minerals

☐ Retail

- ☐ Recycling  
☐ Junk/Salvage Yard  
☐ Municipal Landfill  
☐ Other Landfill

- ☒ DOD  
☐ DOE  
☐ DOI  
☐ Other Federal Facility \_\_\_\_\_  
☒ RCRA

- ☐ Treatment, Storage, or Disposal  
☒ Large Quantity Generator  
☐ Small Quantity Generator  
☐ Subtitle D  
☐ Municipal  
☐ Industrial  
☐ "Converter"  
☐ "Protective Filer"  
☐ "Non- or Late Filer"  
☐ Not Specified  
☐ Other \_\_\_\_\_

Waste Generated:

- ☒ Onsite  
☐ Offsite  
☐ Onsite and Offsite

Waste Deposition Authorized By:

- ☐ Present Owner  
☐ Former Owner  
☒ Present & Former Owner  
☐ Unauthorized  
☐ Unknown

Waste Accessible to the Public:

- ☐ Yes  
☒ No

Distance to Nearest Dwelling,  
School, or Workplace:

On-Site Feet

### 6. Waste Characteristics Information

Source Type:

(check all that apply)

Source Waste Quantity:  
(include units)

Tier<sup>\*</sup>:

General Types of Waste (check all that apply)

- ☐ Landfill  
☐ Surface Impoundment  
☒ Drums  
☒ Tanks and Non-Drum Containers  
☐ Chemical Waste Pile  
☐ Scrap Metal or Junk Pile  
☐ Tailings Pile  
☐ Trash Pile (open dump)  
☐ Land Treatment  
☐ Contaminated Ground Water Plume  
(unidentified source)  
☐ Contaminated Surface Water/Sediment  
(unidentified source)  
☒ Contaminated Soil  
☒ Other Oil/Water Separators  
☐ No Sources

\_\_\_\_\_ gal.  
435  
11,274 lb/yr  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
8,250 ft<sup>2</sup>  
unk.

C

W

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A

\_\_\_\_\_

\_\_\_\_\_

- ☐ Metals  
☒ Organics  
☐ Inorganics  
☒ Solvents  
☒ Paints/Pigments  
☐ Laboratory/Hospital Waste  
☐ Radioactive Waste  
☐ Construction/Demolition Waste  
☐ Pesticides/Herbicides  
☒ Acids/Bases  
☒ Oily Waste  
☐ Municipal Waste  
☐ Mining Waste  
☐ Explosives  
☐ Other \_\_\_\_\_

Physical State of Waste as Deposited (check all that apply):

- ☐ Solid  
☒ Sludge  
☐ Powder  
☒ Liquid  
☐ Gas

<sup>\*</sup> C = Constituent, W = Wastestream, V = Volume, A = Area





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### 7. Ground Water Pathway

Is Ground Water Used for Drinking Water Within 4 Miles:

- ☒ Yes  
☐ No

Type of Drinking Water Wells Within 4 Miles (check all that apply):

- ☐ Municipal  
☒ Private  
☐ None

Is There a Suspected Release to Ground Water:

- ☐ Yes  
☒ No

Have Primary Target Drinking Water Wells Been Identified:

- ☒ Yes  
☐ No

If Yes, Enter Primary Target Population:

1,476 People

List Secondary Target Population Served by Ground Water Withdrawn From:

0 - 1/4 Mile	<u>0</u>
> 1/4 - 1/2 Mile	<u>0</u>
> 1/2 - 1 Mile	<u>0</u>
> 1 - 2 Miles	<u>405</u>
> 2 - 3 Miles	<u>679</u>
> 3 - 4 Miles	<u>392</u>
Total Within 4 Miles	<u>1,476</u>

Depth to Shallowest Aquifer:

6 Feet

Karst Terrain/Aquifer Present:

- ☐ Yes  
☒ No

Nearest Designated Wellhead Protection Area:

- ☐ Underlies Site  
☐ > 0 - 4 Miles  
☒ None Within 4 Miles

### 8. Surface Water Pathway

Type of Surface Water Draining Site and 15 Miles Downstream (check all that apply):

- ☒ Stream ☒ River ☐ Pond ☐ Lake  
☐ Bay ☐ Ocean ☐ Other \_\_\_\_\_

Shortest Overland Distance From Any Source to Surface Water:

3,150 Feet

\_\_\_\_\_ Miles

Is There a Suspected Release to Surface Water:

- ☐ Yes  
☒ No

Site is Located in:

- ☐ Annual - 10 yr Floodplain  
☐ > 10 yr - 100 yr Floodplain  
☐ > 100 yr - 500 yr Floodplain  
☒ > 500 yr Floodplain

Drinking Water Intakes Located Along the Surface Water Migration Path:

- ☐ Yes  
☒ No

Have Primary Target Drinking Water Intakes Been Identified:

- ☐ Yes  
☒ No

If Yes, Enter Population Served by Primary Target Intakes:

\_\_\_\_\_ People

List All Secondary Target Drinking Water Intakes:

Name	Water Body	Flow (cfs)	Population Served
NONE			
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
Total within 15 Miles			_____

Fisheries Located Along the Surface Water Migration Path:

- ☒ Yes  
☐ No

Have Primary Target Fisheries Been Identified:

- ☐ Yes  
☒ No

List All Secondary Target Fisheries:

Water Body/Fishery Name Flow (cfs)

NONE



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### 8. Surface Water Pathway (continued)

Wetlands Located Along the Surface Water Migration Path:  
☒ Yes  
☐ No

Have Primary Target Wetlands Been Identified:  
☒ Yes  
☐ No

List Secondary Target Wetlands:

Water Body	Flow (cfs)	Frontage Miles
Hurricane Creek	135	5
Nottoway River	370	5

Other Sensitive Environments Located Along the Surface Water Migration Path:  
☒ Yes  
☐ No

Have Primary Target Sensitive Environments Been Identified:  
☒ Yes  
☐ No

List Secondary Target Sensitive Environments:

Water Body	Flow (cfs)	Sensitive Environment Type
Nottoway River	370	Endangered Species Habitat

### 9. Soil Exposure Pathway

Are People Occupying Residences or  
Attending School or Daycare on or Within 200  
Feet of Areas of Known or Suspected  
Contamination:  
☐ Yes  
☒ No

If Yes, Enter Total Resident Population:

\_\_\_\_\_ People

Number of Workers Onsite:

- ☐ None  
☒ 1 - 100  
☐ 101 - 1,000  
☐ > 1,000

Have Terrestrial Sensitive Environments Been Identified on  
or Within 200 Feet of Areas of Known or Suspected  
Contamination:

- ☐ Yes  
☒ No

If Yes, List Each Terrestrial Sensitive Environment:

\_\_\_\_\_

### 10. Air Pathway

Is There a Suspected Release to Air:  
☐ Yes  
☒ No

Enter Total Population on or Within:

Onsite	0
0 - ¼ Mile	400
> ¼ - ½ Mile	1,500
> ½ - 1 Mile	1,200
> 1 - 2 Miles	3,285
> 2 - 3 Miles	1,279
> 3 - 4 Miles	392
Total Within 4 Miles	8,056

Wetlands Located Within 4 Miles of the Site:

- ☒ Yes  
☐ No

Other Sensitive Environments Located Within 4 Miles of the Site:

- ☒ Yes  
☐ No

List All Sensitive Environments Within ¼ Mile of the Site:

Distance	Sensitive Environment Type/Wetlands Area (acres)
Onsite	NONE
0 - ¼ Mile	
> ¼ - ½ Mile	



APPENDIX C  
Spill Report

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(Red)

ORIGINAL



# COMMONWEALTH of VIRGINIA

JOHN G. CASTLES  
MAJOR GENERAL  
THE ADJUTANT GENERAL

Department of Military Affairs  
Adjutant General's Office  
600 East Broad Street

RICHMOND, VIRGINIA 23219-1811

November 19, 1992

Facilities Engineering  
and Management/Environmental

State Water Control Board  
Attn: Meade Anderson  
4900 Cox Road  
P.O. Box 11143  
Richmond, Virginia 23230

Dear Mr. Anderson:

Please find attached a copy of the site inspection report for the spill at the Virginia Army National Guard's MATES facility at Fort Pickett. As you will recall, the spill occurred after a floor drain pipe was severed during the installation of an oil-water separator.

As Mr. Dudley, Environmental Protection Specialist for the Virginia Department of Military Affairs, discussed with you on November 13, 1992, the analytical results indicate very low levels (under 12 parts per million) of total volatile and semi-volatile contaminants. Because of this, the Department of Military Affairs is proposing that no action be taken with regard to on-site soil removal/remediation. The soil will be used as backfill during the oil-water separator construction.

Should you have any questions concerning the report, please contact Russell Dudley at 775-9445/9401.

Sincerely,

Stephen L. Huxtable  
Major, Virginia National Guard  
Assistant Chief of Staff  
Facilities Engineering and  
Management

Attachments





DEPARTMENT  
OFFICE C

AIR FORCE  
IRGINIA

600 EAST BROAD STREET  
RICHMOND, VIRGINIA 23219-1832



REPLY TO  
ATTENTION OF

VAFM-E (200-1a)

7 December 1992

MEMORANDUM FOR MAJ TUCK, MATES SUPT & PBO, VaARNG, Building 134,  
Fort Pickett, Virginia 23824-5000

SUBJECT: Spill Residue Disposal at MATES

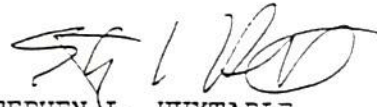
1. On September 12, 1992 during the installation of an additional oil-water separator at the VaARNG MATES facility, approximately 80 gallons of liquid was spilled into an excavation from an underground pipe. The pipe originated from a floor drain in a MATES vehicle maintenance shop. The spilled liquid was immediately removed and drummed into two 55-gallon drums; the exposed soil was also removed, piled next to the excavation, and covered. Because reports indicated that the spilled liquid had a "solvent-like" odor, VAFM-E contracted SEC Donohue to determine the nature of the spill. The results and recommendations are summarized in items two through four, below.
2. Analyses of volatile and semi-volatile constituents in the soil that was excavated and the soil remaining in the pit revealed a total of 12 parts per million (ppm) of contaminants, in the most contaminated sample. Analysis of the removed liquid revealed a total of less than 10 ppm of contaminants.
3. Because the laboratory analysis revealed a very low level of contaminants (much less than the 100 ppm action limit for underground storage tank contamination), the excavated soil may be used as backfill material.
4. Because the laboratory analyses revealed a very low level of contamination in the liquid sample and because most of the contaminants found are petroleum based, discharge of the liquid into an operational oil-water separator is permissible, as per VWCB direction.

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(12/23)

VAFM-E  
SUBJECT: Spill Residue Disposal at MATES

5. POC for this information is Mr. Russ Dudley, (804) 775-9445, extension 9445.

FOR THE ADJUTANT GENERAL:



STEPHEN L. HUXTABLE  
MAJ, EN, VaARNG  
ACofS, Facilities Engineering  
and Management

CF:  
Ft. Pickett, DEH, Mr. Dave Foley  
VAMA  
VAFM-E

APPENDIX D  
Target Study Area Map

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**APPENDIX E**  
**Coordinate Worksheet**

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(Red)

LATITUDE AND LONGITUDE CALCULATION WORKSHEET #2  
LI USING ENGINEER'S SCALE (1/60)

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SITE NAME: VAARNG MATES FACILITY CERCLIS #: \_\_\_\_\_

AKA: \_\_\_\_\_ SSID: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

CITY: BLACKSTONE STATE: VA ZIP CODE: \_\_\_\_\_

SITE REFERENCE POINT: CENTRE OF SITE

USGS QUAD MAP NAME: BLACKSTONE EAST TOWNSHIP: \_\_\_\_\_ N/S RANGE: \_\_\_\_\_ E/W

SCALE: 1:24,000 MAP DATE: \_\_\_\_\_ SECTION: \_\_\_\_\_ 1/4 \_\_\_\_\_ 1/4 \_\_\_\_\_ 1/4

MAP DATUM: 1927 1983 (CIRCLE ONE) MERIDIAN: \_\_\_\_\_

COORDINATES FROM LOWER RIGHT (SOUTHEAST) CORNER OF 7.5' MAP

LONGITUDE: 77° 52' 30" LATITUDE: 37° 00' 00"

COORDINATES FROM LOWER RIGHT (SOUTHEAST) CORNER OF 2.5' GRID CELL:

LONGITUDE: 77° 57' 30" LATITUDE: 37° 02' 30"

CALCULATIONS: LATITUDE (7.5' QUADRANGLE MAP)

A) NUMBER OF RULER GRADUATIONS FROM LATITUDE GRID LINE TO SITE REF POINT: 315

B) MULTIPLY (A) BY 0.3304 TO CONVERT TO SECONDS:

$$A \times 0.3304 = \underline{104.1}''$$

C) EXPRESS IN MINUTES AND SECONDS (1' = 60''): 1° 44' 1''

D) ADD TO STARTING LATITUDE: 37° 02' 30.0'' + 1° 44' 1'' =

SITE LATITUDE: 37° 3' 14.1''

CALCULATIONS: LONGITUDE (7.5' QUADRANGLE MAP)

A) NUMBER OF RULER GRADUATIONS FROM RIGHT LONGITUDE LINE TO SITE REF POINT: 142

B) MULTIPLY (A) BY 0.3304 TO CONVERT TO SECONDS:

$$A \times 0.3304 = \underline{46.9}''$$

C) EXPRESS IN MINUTES AND SECONDS (1' = 60''): 0° 46' 9''

D) ADD TO STARTING LONGITUDE: 77° 57' 30.0'' + 0° 46' 9'' =

SITE LONGITUDE: 77° 58' 16.9''

INVESTIGATOR: EDWARD MILES DATE: FEBRUARY 3, 1994

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12/20/11

## APPENDIX F

### Analytical Data



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**Versar**  
INC

January 14, 1994

Mr. Steve Lantz  
Department of the Army  
U.S. Army Corps of Engineers  
Norfolk District  
803 Front Street  
Norfolk, Virginia 23510-1096

Reference: Contract No. DACA85-83-D-0007  
Versar Job No. 2198.002

Subject: Fort Pickett Building Demolition Specification and Drawing Package

Dear Mr. Lantz:

This letter presents a summary of our findings after investigating the five buildings to be demolished and collecting additional environmental samples. These samples were used to supplement the information contained in the August 13, 1993 Environmental Laboratories, Inc. (ELI) report concerning these buildings.

On October 13, 14 and 15, 1993, Versar employee Brad Norton collected additional samples in an effort to characterize the materials to be dealt with during the demolition of the buildings. Samples were collected from: previously unsampled material suspected to contain asbestos; soil where potential for petroleum contamination is suspected; composite building materials to determine the leachability of lead from these materials; additional paint chips for lead content; and soil where a potential for lead contamination is suspected.

The asbestos sample collected from some wallboard in Building 137 did not contain asbestos above the detection level of 1 percent. The building materials identified in the ELI report as asbestos containing will be indicated on the drawings for removal prior to building demolition.

Two soil samples were collected and analyzed for the petroleum constituents benzene, toluene, ethylbenzene, and total xylenes (BTEX). One sample was collected near the edge of the terracotta pipe outside of Building 137 and the other sample was collected approximately 10 feet downgradient of Building 88. BTEX was not detected above the method detection limit in either sample.

Eight soil samples were collected and analyzed for total petroleum hydrocarbons (TPH). The sample numbers, locations, and results are presented in Table 1. TPH was not detected above the method detection limit in five of the samples. The other three samples from Buildings 68 and 137 yielded concentrations of 100 parts per million (ppm), 120 ppm, and 200 ppm, all identified as diesel. The Virginia action level for total TPH is 100 ppm. The samples that met or slightly exceeded this level are from surface stained areas that probably represent minor spills at these two buildings. Removing the top few inches of soil in these areas will probably mitigate the problem. It is my understanding that the handling of any petroleum contaminated soil will be addressed under a separate contract.

**Versar** INCORIGINAL  
(Red)

Mr. Steve Lantz

- 2 -

January 14, 1994

Six composite samples were collected and analyzed for lead using the Toxicity Characteristic Leaching Procedure (TCLP). The sample numbers, locations, and results are presented in Table 2. The analytical method requires the analysis for seven additional metals as shown in the table. None of the samples had concentrations of lead or the other compounds that exceeded the EPA Toxicity Characteristic (TC) limits set forth under the TC rule. This would indicate that the debris generated from the demolition of the buildings would not be considered hazardous waste under the rule.

Two paint chip samples were collected and analyzed for total lead content by weight. The sample collected from the ceiling of the repair shop in Building 137 had a lead concentration of 0.41 percent. The sample collected from the duct in the west wing of Building 137 had a lead concentration of 0.62 percent. Current guidelines set 0.50 percent as the level at which paint is considered to be lead containing.

Twelve soil samples were collected and analyzed for total lead content by weight. The sample numbers, locations, depths, and results are presented in Table 3. The results ranged from 17 ppm to 5,000 ppm. Because the analysis was for total lead instead of TCLP it is impossible to determine what the corresponding TCLP result would be. For the purpose of this demolition specification, we recommend that the top four inches of soil from each building site (including a 10 foot buffer around each building) be excavated and stockpiled on site. The contractor will be made responsible for collecting a sample from each pile and having it analyzed using TCLP. Based on the sample results, the soil will be disposed off site accordingly. For bidding purposes, the contractors can include in their lump sum price the cost of the sample collection and analysis and the assumption that the soil will not be treated as hazardous waste. In the event that the results show otherwise, we can ask the contractors to provide unit prices (per cubic yard or ton) to dispose of any contaminated soil.

The ELI report identified lead containing paint in the buildings to be demolished. However, based on the Versar TCLP results from composite building materials, which included the lead paint, it appears that normal demolition techniques will not create a hazardous situation. We will include in the specifications the requirement that the contractor's personnel should be trained under the OSHA construction standard for lead and that personal air monitoring will be required for this project. Also, we will indicate that measures should be taken to reduce the dust generated from demolition activities.

Enclosed please find the three sample result tables identified above. I will maintain the sample chain of custody and raw laboratory analytical data in our files. If you need a copy, just let me know.

As per our phone conversation on January 11, 1994, we are planning to submit a draft copy of the specifications and drawings for your review by the end of January. If you have any questions or need additional information, please feel free to call me at (703) 750-3000, extension 488.

Very truly yours,

*Stephen L. Maxwell*Stephen Maxwell  
Project ManagerSM/ig  
LNG00159

Enclosures



Versar INC

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## FORT PICKETT

TABLE 1

SUMMARY OF ANALYTICAL DATA FOR SOIL SAMPLES  
TPH, EPA METHOD 8015  
[Units Reported in mg/kg (ppm)]

Location		
FTP-H1	Bldg. 137, at pipe from Tank 1	ND
FTP-H2	Bldg. 137, rear of west wing	100
FTP-H3	Bldg. 137, 10 feet from pipe at Tank 1	200
FTP-H4	Bldg. 68, ditch in center of building	120
FTP-H5	Bldg. 68, ditch downgradient from FTP-H4	ND
FTP-H6	Bldg. 501, by door	ND
FTP-H7	Bldg. 501, 20 feet down east slope	ND
FTP-H8	Bldg. 501, 20 feet down northeast slope	ND
VA Action Level (Total TPH)		100

## Notes:

ND = Not detected above the laboratory detection limit.  
 These samples were also analyzed for gasoline, kerosene, and No. 4 fuel oil. These compounds were not detected above the laboratory detection limit in any of the samples and are not shown in the table.

↑  
Diesel



**Versar** INC

ORIGINAL

FORT PICKETT

TABLE 2

SUMMARY OF ANALYTICAL DATA FOR COMPOSITE SAMPLES  
TCLP METALS, EPA METHOD SW846, ICP  
[Units Reported in mg/kg (ppm)]

Sample ID	Location Description	Arsenic	Barium	Chromium	Lead	Selenium
FTP-T1	Bldg. 137, wallboard in east wing	ND	0.0047	ND	ND	0.024
FTP-T2	Bldg. 137, exterior wall on east side	ND	0.017	ND	0.840	0.032
FTP-T3	Bldg. 814, block wall by chimney	ND	0.0382	ND	0.0724	0.015
FTP-T4	Bldg. 68, block wall inside building	ND	0.0098	ND	ND	0.018
FTP-T5	Bldg. 68, wood window sill	0.248	0.0208	0.0451	0.223	ND
FTP-T6	Bldg. TR022, block wall on east side	ND	0.0183	ND	ND	ND
EPA TC Limit		5	100	5	5	1

Notes:

ARSENIC

BARIUM

CHROMIUM

LEAD

SELENIUM

ND = Not detected above the laboratory detection limit.

These samples were also analyzed for cadmium, mercury, and silver. These compounds were not detected above the laboratory detection limit in any of the samples and are not shown in this table.

**VERSAR** INCORIGINAL  
(P23)

## FORT PICKETT

TABLE 3

SUMMARY OF ANALYTICAL DATA FOR SOIL SAMPLES  
TOTAL LEAD, EPA METHOD SW846, ICP  
[Units Reported in mg/kg (ppm)]

Sample ID	Location	Depth (inches)	Lead (mg/kg)
FTP-LS1	Bldg. 137, east end	0-2	5,000
FTP-LS2	Bldg. 137, east end	2-4	3,440
FTP-LS3	Bldg. 137, rear of east wing	0-2	208
FTP-LS4	Bldg. 68, air side	0-2	320
FTP-LS5	Bldg. 68, air side	2-4	895
FTP-LS6	Bldg. 68, 10 feet from building	0-2	17
FTP-LS7	Bldg. 814, 0.5 feet from south side	0-2	832
FTP-LS8	Bldg. 814, 0.5 feet from south side	2-4	488
FTP-LS9	Bldg. 814, 4 feet from north side	0-2	1,150
FTP-LS10	Bldg. TR022, southeast corner	0-2	340
FTP-LS11	Bldg. TR022, southeast corner	2-4	42
FTP-LS12	Bldg. TR022, southwest corner	0-2	183

Depth  
(inches)

Lead

CVC  
CENTRAL VIRGINIA  
LABORATORIES & CONSULTANTS

P.O. Box 10938 Lynchburg, Virginia 24506  
OFFICE: 2418 Langhorne Road • 804-847-2852

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(Red)

EMMA POPE  
VIRGINIA GEOTECHNICAL SERVICES PC  
8211 HERMITAGE ROAD  
RICHMOND VIRGINIA 23228

November 18, 1991

Subject: Analysis Results for Mates Project Number: EV-627

SAMPLE IDENTIFICATION: CVLC #11642 CUSTOMER: Oil 1

Sample Collected: 11/05/91 0920 hours to 0925 hours  
Sample Relinquished: date and time not given  
Sample Received: 11/05/91 1656 hours

<u>ANALYSIS</u>	<u>RESULTS(mg/kg)</u>	<u>USED OIL LIMIT(mg/kg)</u>
Arsenic, Total	<0.050	5 MAX
Cadmium, Total	5.05✓	2 MAX
Chromium, Total	<2.5	10 MAX
Flashpoint	138.2°F	100°F
Lead, Total	15	100 MAX
Total Halogens	13	1000



CENTRAL VIRGINIA  
LABORATORIES & CONSULTANTS

P.O. Box 10938 Lynchburg, Virginia 24506  
OFFICE: 2418 Langhorne Road • 804-847-2852

MATES

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CVLC Page 2  
Virginia Geotechnical Services P.C.  
November 13, 1991

SAMPLE IDENTIFICATION: CVLC #11643

CUSTOMER: Oil 2

Sample Collected:

11/05/91

0920 hours to 0925 hours

Sample Relinquished:

11/05/91

date and time not given

Sample Received:

11/05/91

1656 hours

ANALYSIS

Arsenic, Total  
Cadmium, Total  
Chromium, Total  
Flashpoint  
Lead, Total  
Total Halogens

RESULTS(mg/kg)

<0.050

3.45

<2.5

>212°F

10

110

USED OIL LIMIT(mg/kg)

5 MAX

2 MAX

10 MAX

100°F

100 MAX

1000

Sincerely,

*Janet M. Zwetolitz*  
Janet M. Zwetolitz  
Laboratory Manager

12/kom

**APPENDIX G**  
**List of Acronyms and Abbreviations**

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(Red)

## List of Acronyms and Abbreviations

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ACM	Asbestos Containing Materials
AST	above ground storage tank
ASI	Advanced Sciences, Inc.
CARC	chemical agent resistant coating
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
ESE	Environmental Science and Engineering, Inc.
EPA	U.S. Environmental Protection Agency
ETA	Engineering Technologies Associates, Inc.
FISP	Facilities Inventory and Stationing Plan
°F	degree Fahrenheit
HRS	Hazard Ranking System
MATES	Mobilization and Training Equipment Site
NPL	National Priorities List
OMS	Organizational Maintenance Shop
PA	Preliminary Assessment
POL	petroleum, oils and lubricant
PPE	Probable Point of Entry
RCRA	Resource Conservation and Recovery Act
SARA	Superfund Amendments and Reauthorization Act
TPH	Total Petroleum Hydrocarbons
TSDF	Transportation, Storage, and Disposal Facility
USAEC	United States Army Environmental Center
USACOE	United States Army Corps of Engineers
USARNG	United States Army National Guard
USEPA	United States Environmental Protection Agency
USP&FO	United States Property and Fiscal Office
UST	underground storage tank
VAARNG	Virginia Army National Guard
µg/l	micrograms per liter